



Published on the 15th of each Month by

THE INDIA RUBBER PUBLISHING CO.

No. 192 WORLD BUILDING, NEW YORK, U. S. A.

JNO. R. DUNLAP.

H. C. PEARSON.

Vol. 8.

MAY 15, 1893.

No. 2.

SUBSCRIPTIONS: \$3.00 per year, \$1.75 for six months, postpaid, for the United States and Canada. Foreign countries, same price. Special Rates for Clubs of five, ten or more subscribers.

ADVERTISING: Rates will be made known on application.
 REMITTANCES: Should always be made by bank draft, Post Office Orders or Express Money orders on New York, payable to THE INDIA RUBBER PUBLISHING COMPANY. Remittances for foreign subscriptions should be sent by International Post order, payable as above.

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Trade supplied by the American News Co. and all its branches.

Entered at New York Post Office as mail matter of the second-class.

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A Tariff on Crude Rubber.

AN import duty on crude rubber has been talked of in Washington, and it is not impossible that an attempt will be made to provide for a revenue from this source in the revision of the tariff schedules which, it is generally conceded, is to occur at the next meeting of Congress. It is impossible to forecast the action of the new Congress, since it is known to embrace some members prepared to take a very radical stand on questions relating to the tariff. There may be those who, disposed to construe literally the declaration of the Chicago platform on the unconstitutionality of protection, will favor a schedule of purely revenue duties, of which a tax on crude rubber would furnish one of the best examples. There is a large element, too, committed to the idea that the manufacturing class has enjoyed too much consideration at the hands of the tariff-makers heretofore, and these may feel justified in opposing on principle any petitions which may come from manufacturers,—such, for instance, as a request that rubber be allowed to remain on the free list.

At any rate the rubber-men may as well be on guard, prepared to protest at the proper time against such a departure from a long-established policy of this government as a tax on rubber would involve.

Under the tariff of 1846 crude rubber was liable to a duty of 10 per cent, which was reduced to 4 per cent. by the act of March 3, 1857, the purpose of which was to lower duties throughout the list. Four years later came the now celebrated Morrill tariff, raising for the most part the duties lowered in 1857 to the former rate, and in some cases making them still higher. Senator Morrill enjoys in the popular mind the reputation of having put everything on his tariff list that he could think of, but he did not include crude rubber. Since 1861, although the tariff has been continuously discussed in Congress, and has been the subject of no end of legislation, neither Republican nor Democrat, so far as we know, has ever proposed the restoration of the duty on rubber which Mr. Morrill removed. To have done so would have been contrary to the Republican policy of taxing no articles which could not be produced at home under the stimulus of protection, and contrary to the Democratic contention that to compete with Great Britain in the world's markets we should have the fullest possible range of free raw materials.

The present administration is in need of money, however, and at the present rate of imports crude rubber would yield \$400,000 a year for each cent per pound levied as a duty. The proposal for such a duty will be supported before the Ways and Means Committee with some arguments never before advanced, which may have weight with some of the members.

The rubber-manufacturers, however, may enter their protest against the proposed duty in the fullest confidence that public opinion will be found upon their side. The great prosperity of the rubber industry in this country has been enhanced by the supply of free raw material, a fact which it will not be hard to establish to the satisfaction of the voters of the country. Besides, the consumption of

rubber goods has become so universal, and they have become a necessity to so many people, that every citizen may be said to be personally interested in whatever may tend to raise prices. A tax on rubber cannot fail, therefore, to be generally obnoxious. The reason for prompt action by the manufacturers is not so much any danger that a duty may be imposed on rubber, as that the proposed movement may be silenced before injury is done to the trade in unsettling prices by the agitation of the subject when Congress meets.

The "World" and the Rubber Trust.

THE New York *World* did not send its Harlem police-court reporter to attend the big social functions given in honor of the Duke of Veragua during his recent visit to this city, for the reason that some one with a wider acquaintance with the smart people of the city than can be gained by chasing the elusive criminal-news item through the goat pastures of upper Manhattan island was needed to report the Duke's movements. But it seemed proper enough, to the *World's* management, to send out its Young-Man-Without-Brains to prepare the scarecrow article which it recently published on "The Rubber Trust—Now is the Time to Smash it!" This may have been due to the settled judgment of the *World's* editor that a man of normal intelligence could not have written such an article as the exigencies of the office made necessary at that particular time. It is probable, however, that this case is only another illustration of the apparent idea in many newspaper offices that no matter how important facts are in all other departments of journalistic work, they are useless and in the way when any industrial topic is to be discussed. For weeks after the publication of the *World's* "Rubber Trust" article the editorial waste-basket in this office was filled daily with newspapers containing reproductions to a greater or less extent of this marvelous medley of misstatements. The fact that such a wide circulation was given to erroneous information is some justification for noticing the matter in a journal representing the rubber trade. It will not be understood that the great newspapers are devoted to writing at random about rubber especially; they offend equally about iron, glass, tin-plate, and other industries, but it is only when they touch upon rubber that we assume that our readers are interested.

Now we do not know whether or not THE INDIA RUBBER WORLD is a defender of "trusts," for the reason that up to date no definition of this word upon which the *World* daily rings innumerable changes has appeared that will apply to any industrial organization with which we are acquainted. But to the *World's* alleged facts: We make some rubber goods here not inferior to foreign products; our manufacturers get exorbitant prices at home and control foreign markets by selling abroad at a lower price; the manufacturers have gotten so rich at this nefarious business that they would go right ahead, even if the tariff on rubber goods was repealed; the United States has the sources of India-rubber within its control, leaving only the rubber of the East Indies to other nations; the first step in a "real

rubber trust" was the formation of the "Reclaimer Rubber Co."; then Charles R. Flint & Co. monopolized the trade in Brazilian rubber, and a gigantic rubber trust was possible. It only remained to group together the manufacturers into "a monster of at least two heads, clearly defined and most forbidding of aspect," to make them masters of the field and render the people helpless. There is in all this "the clue to a third head, which is kept carefully out of sight." The result of the combination is "the setting up of an additional organization with a heavy, even outrageous, salary list," though "the combination certainly lessens the number of laborers employed."

But there is no need to multiply "facts" of this character. The men in the rubber trade most generally understand their business, and are not to be misled by Mr. Young-Man-Without-Brains, while those who are not engaged in the trade will hardly be affected one way or another.

It is worth while to quote from a shoe-trade journal the suggestion that the profits of all the rubber companies in the combination as reported by them last year were not as great as the profits reported in some quarters as having been made during the same time by the *World* alone. The same paper figures out a profit of a little more than two cents per pair on the output of a great rubber-shoe manufacturing company, and fails to see why the *World* should hold up its hand in such horror at this figure. It might have added that the *World* would not have been satisfied with the same average of profit for its two-line "want" advertisements. It might have added, also, that when the *World* wanted to advance the price of its Sunday paper it entered into a combination with the other leading New York newspapers to put up prices all around, and when it wished to reduce its composition bills a little later it again entered into a combination with its neighbors in order to strengthen its position against the printers. Why combinations should be a bad thing for rubber-manufacturers, while permissible among newspaper publishers, it would be interesting to learn.

The most marvelous thing about the *World's* four-column article is that it winds up by quoting a United States law against "restraint of trade or commerce among the several States or with foreign nations," and calls upon the Attorney-General to prosecute the United States Rubber Co. under this law. It would be safe for the Attorney-General to offer a very large reward for the discovery of a single member of the United States Rubber Co. who is in favor for one moment of any "restraint of trade" in the rubber-shoe business, judging from the efforts now being made to increase sales.

THE Government of Nicaragua adopted the metric system January 1. There is a necessity in rubber-exporting countries, especially in those of Central America, for more exactitude in weights. For a New York importer to receive ten "burdens" of India-rubber may mean much to the backs of as many mules, but is very vague to the consignee. There is room for the adoption of better business methods in many branches of the crude-rubber trade.

Future Prices for Mechanical Goods.

A PROMINENT rubber-manufacturer in the East remarked a few days ago: "Everything that goes into the make-up of belting, packing, hose, and general mechanical goods is higher in cost to-day than it was a year ago, with the single exception of sulphur and whiting. Now with higher cotton, higher rubber, and higher recovered rubber, and with the fact staring us in the face that for a number of years past prices have been reduced steadily, it should follow that this year prices of manufactured goods should be higher. I do not see, otherwise, how there can be any money at all for the manufacturers. We are seriously contemplating a rise all along the line."

This gentleman is not alone in his opinion, by any means. Numbers of makers of these goods are in full sympathy with him, and unless there is some material change in the prices of crude material an advance is to be looked for immediately. This should in no way trouble the retailers, for last season was an exceedingly prosperous one for them, and from accounts all over the country the present stocks are very light. A grain of comfort for both manufacturer and retailer may be found in the positive statement of one of the weather experts that following a snowy winter, comes a dry and hot summer. If this is the case, garden-hose ought to have a boom such as has never been known in the past. What the summer will really be, however, can only be developed by waiting, and it is perhaps not well to depend too much on the predictions of the "weather-wise."

One Effect of High-Priced Rubber.

THE rise in the price of crude rubber is in one way a most decided advantage in the rubber trade. The higher the price goes the more the originality and ability of the manufacturer is taxed to get along with as little rubber as possible and to make other materials answer the purpose. At first thought it might seem that this would always result in a deterioration in the quality of the goods. But this is far from being true. Had it not been for the rise in price of India-rubber it is probable that the processes for recovering all kinds of rubber scrap, and making them practically unvulcanized rubber again, would never have been effected. To-day some of the best wearing goods that can possibly be produced are made by a combination of new rubber and recovered rubber, with various ingredients that lend special features to the compound. The rise in the price of Pará rubber has also led manufacturers to use the African gums and lower grades of rubber that at one time almost went begging for purchasers. There is no doubt that coarser rubbers often have in themselves special excellencies that can only be brought out with experimental use. With fine Pará rubber low and plenty, that experimenting would never have been indulged in by the busy manufacturer. Only when he has been obliged to get out goods at a certain price, and Pará has been out of sight, has he been forced to use some of the other grades, finding them to have special values.

In spite of the fact that rubber substitutes have so many different names, the progress that has been made in the intelligent use of them has come also from this same cause, and is one point which rubber-men should pride themselves on. A substitute that contains chlorid of sulphur or free oil is of course a damage anywhere, and it took costly experimenting to learn this. This lesson, however, is now thoroughly learned and the substitutes that are used to-day are only such as can be relied upon to give permanent results. What the future of rubber substitutes is to be no man can tell, but day by day they are being used more freely, and in many cases with satisfaction to both manufacturer and consumer.

Speaking of recovered rubber, the business that a bright young man became engaged in not long ago in this line is interesting. He was picking up old springs, belts, and hose, and it occurred to him that these goods might be utilized without being turned into shoddy. He therefore took the larger springs, turned them down smaller, and resold them as new springs. He cut the large hose open, put it in a press, and flattened it out and made stair-treads of it, and sold a great many of them. The belts he tore apart, cemented afresh, put new covers on, and sold again as new rubber belting. Of course his business was small, and when it was discovered what he was at, he was frowned upon, but by this revamping of old goods he made quite a little sum of money and is still "in the swim."

Car-Couplers and Air-Brakes.

THE car-coupler bill, which compels the adoption of the air-brake on all freight trains, passed Congress in the closing hours of the last session and received the signature of President Harrison.

Its operation will cause a large increase in the consumption of rubber, and in a pecuniary way it will be of decided advantage to the mechanical-goods manufacturers.

A brakeman who had long been in the service of the Boston and Albany Railroad Co., while passing over the steep grade between North Adams and Pittsfield, Mass., said to a passenger who stood on the platform: "We always like to get twenty or more freight cars with the air-brake. We then place them next to the engine, and the engineer can handle the train without our help. I say this not because we wish to shirk our work, but on our steep grades, which extend for miles, when we approach the top of a hill, the engineer shuts off steam and we have to manage the train for him by setting the brakes. If we are at all negligent, there is great danger of the train getting away from us. Our difficulty is greatest on cold nights, and in blinding snow-storms, and you have little idea of how taxing to our strength is this sort of work. Our trains often break in two, and we run all sorts of dangers, and the new law will be a great boon to us; besides, it will mean a saving to the companies in more senses than one. To control a train in our crude way, we often have to slip the wheels, which makes them 'flat,' and then they have to be renewed."

METHODS USED IN SELLING FIRE-HOSE—III.*

By a Fire-Hose Salesman.

WHEN one undertakes an unusual task he is apt to be somewhat in doubt of the direction he will travel; so in giving to my readers these reminiscences my mind will wander to all points of the compass. In my observations it has been conclusively shown that salesmen who were moderately successful in selling fire-hose in the West, have proved howling successes as salesmen when coaxed into the East, while of the hundreds from the East who have been sent to the West to show "how to do it," few have made any record.

In 1882, when St. Charles, Mo., had about completed a system of waterworks, Colonel R—, then acting as chief of their primitive fire-department, sent out several letters to fire-hose manufacturers and agents, in St. Louis, Chicago, and New York, announcing that the city would buy fire-hose, carts, pipes, etc. One of these letters was to a firm in Chicago, selling-agents for a New York manufacturing company, and a salesman was directed to answer immediately in person. The time of the year was August, and that part of the world was very hot and dry, and the salesman did not relish the task. St. Charles was only twenty miles from St. Louis, where the manufacturers of the goods he sold had agents, who could sell the same as cheaply as he could, and who possibly were aware of the deal. Apparently there was not much of a chance for him, but the orders were to go there, and he went. He arrived in St. Charles before noon and went to the hotel. After using the primitive "wash-up," although the thermometer stood 107° in the shade, he felt that he must know the situation at once, and with coat on his arm, vest discarded, and hat tipped back, he sauntered down the partly shady side of Main street, the only moving creature in sight. A short walk brought him in view of three men lounging in front of a grocery, apparently simply existing. When within a few steps of them he heard one say:

"Bet yer ther' drinks he's from Sherkego."

"Yer bet!" another answered.

By this time the salesman was at the front and stopping remarked:

"My friend, you've won the bet; if you'll show where they can be bought I'll set 'em up."

The evidence of dormant thirst was instantaneous and "to the left, march!" took but a moment. After the four long lemonades, cold and sweet, had been sampled, the salesman mentioned the matter uppermost in his mind,—that he was looking for Colonel R—, chief of the fire-department.

"Why, Lord bless you, young man, I'm him," was the answer, "and this is the chairman, an' we 'spect to have a meetin' with the mayor this evenin' an' look over the samples an' bids we've received, as we three have authority to buy, an' we kinder 'spect some other fellers will be yere."

It was not very hard work to get them to consent to meet with "His Honor" in the afternoon, and look over the samples and talk it over, which was done, with the result that they did not wait until evening to close the matter and sign the contract. But there was one thing in the deal that the salesman confessed to me always troubled his conscience, namely: the home office of the New York company had sent a sample and bid, naming a price of \$1 per foot, coupled and delivered, the sample being a nice smooth, four-ply rubber, black color outside. But the salesman wanted to get more than that price per foot, so he submitted from his stock a similar sample—only of light straw color outside—the price for which he made \$1.10 per foot. "White hose costs more than black, you know," he said. But they bought good hose, and the salesman had no difficulty in duplicating the order a year later, and I am told that they stuck to that make until last summer, when one of the latter-day saints got in his deadly work with another make.

The way an enquiry is treated when received at the office of either the factory or the store has much to do with the question of getting an order. One instance that I recall relates to a small city in Ohio. The enquiry received at the factory was answered by letter. After some correspondence, without satisfactory results, the treasurer "allowed" he could fix it, and made a trip to the place, but returned without the order, much disgusted. He "didn't believe they wanted to sell the town fire-hose any way," he explained to the fire-hose salesman, who soon afterward came in from a trip. "Why," said the treasurer, "I found that the mayor had the buying of the hose, and I couldn't get him to say anything except that 'the boys say your hose is very good hose, but I guess they can get along a little while longer with what they have.' He's a very nice man,—a deacon, they say, and sometimes preaches in the church, and seems to take more interest in fires hereafter than in the present. No use spending any more money on that town!"

But the salesman did not agree with this view, simply saying "I'll try him." The next day the salesman called for \$300 for expense money, and took the train for the town mentioned, finding the situation as regarded the mayor as reported. Nor could he make any break through the iced reserve. They wanted hose badly, the mayor had authority to buy, the chief and members of the force reported his hose to be the kind they wanted, but still it was chilly. The second day the salesman called at the mayor's house soon after breakfast, asking him to walk to the engine-house and see how bad the hose was. The mayor said that he must go over to the church first to see about some repairs. So they went to the church, and the conversation naturally was entirely connected with the church. As they came in sight of that edifice the salesman, noticing that it looked rather weather-beaten, remarked:

* Articles under this heading were published in THE INDIA RUBBER WORLD for February 15 and March 15, 1893.

"Your church needs painting badly."

"Yes," the mayor replied, "we want to paint it, but cannot afford to yet."

"How much will it cost to paint it?"

"Oh, about \$175," was the answer.

By this time they had passed through the door.

"Mr. Blank," says the salesman, "I'll tell you what I'll do. If you will sign the contract for the fire-hose, I will make a present through you to the church of \$200 to pay for having it painted (taking the money from his pocket) and here's the cash now."

The mayor gazed at the salesman in the dim light of the vestry, hesitated a moment, put forth his hand, and transferred the cash. They walked to his office, the contract was signed, and as they parted the mayor remarked:

"I don't think the church will get painted before we buy another bill of hose; understand?"

"That's all right; next season?"

"Yes, next season."

The manipulation of recommendations has been a great factor in the hands of salesmen, some of them honestly meant by the signers, others worked for various considerations. When cotton rubber-lined hose was first put in service its longevity was severely questioned, and a line of hose that could have a record of time was very desirable. So when Boston bought some of the first of a certain make, the manufacturers saw to it where the thousand feet went and a personal friendship sprung up for the captain and members of that engine-company, and for several years was most carefully cultivated. Then it was understood that as long as that thousand feet could be kept in service, so long a regular annuity was attached thereto, and for twelve years or more the fabric was darned, patched, re-lined, and recovered, so that it could still be in the printed recommendations of "still in service after 'steen years." Probably it would still be so advertised if something hadn't "happened."

One method worked through the West with great success has been that of telegraph recommendations, the joke to an outsider being that the department which wires of the excellence of the fire-hose or apparatus in question had none, and up to that time never had any of the same in use. Some of the members of the Kansas City (Mo.) department will appreciate this, although some of the towns in their section that it was worked on, if they have ever found it out, do not. It doesn't take a real Hercules to work such methods, and in any business but that of dealing with ever-changing individuals in control of a city's affairs the men who uphold and countenance such methods would be censured. The use of the name of a city, its officers, and fire-department, for the sale of manufactured goods can never result in any good or profit to the fire-department or the city.

In the sale of fire-hose it has been a common practice to give a guarantee of strength, of 400 pounds pressure or more to the square inch, and a warrant of time of three or more years. Often hose has been delivered and rejected because it would not stand the test of pressure guaranteed, and many a sale has been annulled by some disappointed salesman who possibly would be able to get the order if he could by any means break up the delivery of the hose contracted for.

Many a time a nice lot of new hose has been ruined and returned to its makers because it burst at a test-pump pressure of less than its guaranteed strength. This often takes place on account of a reason that can best be illustrated by a description of the rude shock received by the chief engineer of one of our largest fire-departments, who went to a manufacturer who understood the construction of such pumps, and gave an order for one to have for use in his department. Everything was satisfactory, including the price, but as the chief was about to depart the man asked him: "What pressure shall I have the gage start at?"

THE EXPEDITION TO THE BENI RIVER.

THE steamer *San Marcos*, which sailed from New York for Colon on April 13, had on board Baron H. Arnous de Riviere, George S. Terry, S. Hilton Scribner, Howard Scribner, Mr. and Mrs. James Deanther, Joseph P. Earle, J. Pierre Jay, F. C. Durant, A. B. Stone, Corey Wright, James Albright,—the last two being mining engineers,—and the Bolivian minister with his family of six. The destination of the party is the Beni river, in Bolivia, which is one of the upper tributaries of the Amazon. The purpose of the party is to fully explore the region drained by that river, to obtain a knowledge of its resources, to see whether a railroad over the Andes at that point is practicable, and to obtain other information that may be of value in opening up a trade with that country. The region in question, for all it is renowned in history as the home of the Inca, is substantially unknown to the modern world, and the point of interest to the party is to ascertain whether the half that has been said about it is true.

Mr. Joseph P. Earle, in speaking of the expedition to a representative of THE INDIA RUBBER WORLD, said:

"The trip, so far as I am concerned, is one of pleasure, with the incident of business attached. For more than ten years I have heard of the resources of Bolivia, and have wished to visit that country, but my relations in the India-rubber trade have been such that it has been impracticable to be away for any length of time. Now, under the new arrangement of the United States Rubber Co., the firm of which I am a member is relieved of many of its responsibilities, and I can go as well as not.

"Bolivia, we are informed, has vast tracts of rubber forests, the gum meeting with high favor among our manufacturers, and bringing a higher price than fine Pará. One reason for this improved quality is that it is dried out better than Islands rubber, through coming from a greater distance. Islands will shrink 22 per cent. and upward, while Bolivian will only lose 14 per cent. It may be cured

better, but the gatherers on the Amazon do not leave much margin in that respect for any competitor. We get very little of this rubber, because it is too far for the native on the Beni river to paddle himself down to a point where he will be sure to find a purchaser.

"The time is approaching when we shall need rubber equal to Pará grades from new points of production. Consumption of that quality is about passing production, and I think this season and its prices will disclose that fact. If that be true, and I believe it to be so, it will be a proper period to make the move we are contemplating. But so far as plans are concerned, we have none that are tangible. Beyond the reconnaissance we have not taken the first business step. We have bought nothing and got nothing except plenty of financial resources. We do not intend to buy anything until we have been over the ground, seen what there is, and have come home, from which latter point we think now will be commenced the initial negotiations months hence. Indeed, we don't know now that we will confine ourselves to the rubber trade, or even have anything to do with it. Bolivia has other large resources, including gold mines; and we may find it more profitable to develop other articles than rubber. It all depends upon what we see when we reach there. We shall have to travel on the backs of mules over the Andes, and as our party is composed of men of leisure, we can be very thorough.

"The Bolivian minister, Senor Obarrie, with his family, goes with us, and Baron Arnous de Riviere will be our guide. The Baron has lived in that country for twenty years, originally coming from France. He has been very successful in developing a trade in cinchona, and has influential relations with the government. Mr. Durant, of

Philadelphia, who goes with us, has large financial means. We are well equipped to do anything that we may practically desire to do, which naturally, so far as rubber is concerned, would be to find an outlet for it on the Pacific coast, but we have no ideas yet in common that have crystallized. Therefore there is little that can be said until we return."

It was stated in some of the daily newspapers, in a discussion of the American expedition to Bolivia for the development of a rubber trade with that country, that one of the results would be that duties to the Brazilian government on the product from the former country passing down the Amazon would be avoided. Such a statement is apt to convey a false impression to the uninformed. Bolivian and Peruvian rubber pays no duty in Brazil provided it does not pass from the control of the custom-house authorities at points of transshipment. Duties are levied, but they are practically in form only, rebates being given to the owners with some immaterial restrictions.

The duties on Brazilian rubber are levied under two heads. The federal government levies an export duty of 21 per cent. on the value of the rubber, and the municipalities levy a further export duty of 21 reis per kilogram for all rubber forwarded to foreign countries.

In the levying of the federal duty, the following base is made to determine the value: The total amount of the sales at the port of exportation is taken, with the prices, for the previous week, and an average made which gives the "standard." The municipal duties vary frequently.

Only about 1 per cent. of the total amount of rubber passing by Pará is from Bolivia, and only about 5 per cent. from Peru.

PECULIARITIES IN THE SHIPMENT OF RUBBER.

ONE who has occasion to examine the manufacturing vessels with rubber coming into the port of New York is struck as to the variation in the manner in which they are made. Take the term "caucho" for example. Almost every one would say that it is a peculiar grade of rubber coming from the upper Amazon or Peru. So it is, but here is a cargo of it coming from Nicaragua, and here comes a lot of it from Cartagena, and it is possible to get it from Africa. It all depends upon the nationality of the vessel. "Caucho" is the Spanish for "caoutchouc," or India-rubber, and the purser with a Castilian tongue sticks to his language in the manifest. It may be "scrap," or "strip," or "virgin," or "Mozambique," or "Borneo;" it is with him "caucho" all the same. Then the way which the shipper in each port has of putting it up is perplexing. One port packs it in bales, another in cases, and a third in bundles; some pack in casks, and so on, reference being had to the mode of inland transportation. Mule transportation requires light bundles, while on the banks of a river like the Amazon it is more convenient to use cases. At some Central American ports casks are obtained readily, goods from foreign points being originally brought in them. Naturally each port takes the handiest and most economical package to be obtained. There is, of course, a great variation in the size of these packages. Weights are very carefully made from South Pacific and Pará points, but variously,—sometimes in kilograms, and again in pounds. From West Indian and Cen-

tral American points freights are computed by measure, and little attention is paid to weights, and the customs of each port have to be followed in arriving at quantities when the cargo arrives at New York. Grades are seldom mentioned in other than Pará shipments, and then sometimes the Portuguese term *sernamby* appears for coarse, and *entre fina* for medium. One grade has an international speculative significance, and carries the basis for all prices and that is Fine Pará on the way, or not long in store.

* * *

A BOSTON MAN PLANTING RUBBER.

A BOSTON man, Mr. H. C. Emery, who has been for a number of years past a very large exporter of mahogany, in the United States of Colombia, has recently started a large rubber plantation on land owned by him in that country. Three years ago he planted a few hundred trees which grew very rapidly; indeed some of the three-year-olds are from eight to ten inches in diameter already. This so encouraged him that last year he put in 40,000 plants grown from the seed. His method is simply to send out a force of men who cut a path about four feet wide through the forests, of course avoiding the large trees, planting the seeds about one in every twenty feet. It happened, however, that the season was so wet that they did not flourish very well; indeed, there was more rain that year than had ever been before according to the old residents. The

experiment therefore was rather disastrous, only about 10,000 of the plants surviving. He intends, however, to push the work until he has from half a million to a million trees. He is doing this more as a matter of experiment than anything else, as he frankly stated that he should not advise his most intimate friend to go into the scheme as a business. At the same time, as his concern employs something like 1500 men, and as he has the best foremen, he can rely on his help. There is every chance that in from eight to ten years the venture will be one of exceeding profit. The rubber that was formerly exported from the United States of Colombia, when gathered properly, was of good quality and found a ready market. Mr. Emery is going about this in an exceedingly sensible fashion, allowing the trees to care for themselves after they get a start and is not throwing away any money on the scheme. Of course it is often said that as long as rubber grows wild there can be no money in cultivating it. When one remembers, however, that the rubber-gatherers often go hundreds of miles to tap the trees and many times have returned with only a small amount of rubber, it looks as if his venture might succeed. At all events all those interested in rubber will watch it with a great deal of interest.

* * *

SHIPMENTS FROM NICARAGUA.

A LATE report by Consul William Newell on the commerce of Nicaragua mentions the following exports of crude rubber (in pounds) for the last two fiscal years:

	1890-91.	1891-92.
To the United States.....	509,090	527,095
To England.....	10,960	6,195
To France.....	1,169	2,760
To Germany.....	1,350	.....
Unspecified.....	.....	1,088
Total.....	522,569	537,138

These figures do not include the movement from Bluefields, from which the only figures available are for the period from April 1 to September 30, 1892,—184,335 pounds.

EDWARD ATKINSON ON FIRE-HOSE.

IN the matter of hose I gravely question whether the hose used in Boston is as a rule of the best kind. One learns by hearsay of many breaks. I think the reason of those breaks may not be due to imperfect manufacture, but probably to the fact that the hose has not been chosen with reference to the smooth or rough interior surface. A costly woven hose lined with rubber is very rough on the inside; the friction due to that roughness puts an unsafe strain upon that hose, and renders the hose stream relatively inefficient. I should be glad to think that I am mistaken, and to feel assured that the fire-commissioners fully comprehend the science of hose and hose streams.

WHAT IS CRAVENETTE?

THE Cravenette process for waterproofing goods consists in applying to the fabric a solution which destroys the absorbent properties of the fiber and thus makes it shed water. The solution does not fill up the interstices, however, but leaves the goods porous. It is named after its inventor, Craven, and can be applied to worsted, cotton, and silk goods. Worsted and cotton goods are not distinguishable after the process from those prior to its application. These goods are made in Bradford,

CRUDE RUBBER NOTES.

PUSINELLI, PRÜSSE & Co., of Pará, seem to be the only exporters of Mangabeira rubber. They shipped to America last year 240 pounds, and that particular case of rubber is yet for sale. Mangabeira rubber grows on a shrub on the southern coast of Brazil. It is a fairly good rubber, but naturally when it comes in so small quantities no one cares to spend the time to handle it.

—Ellinger Brothers received by the Panama steamer *City of Pará* last month 66 bales bastard rubber, weighing 5650 pounds. It came from Central America.

—Exports of Chicle from Mexico for a number of years past are stated thus by a correspondent of *Bradstreet's* (New York) for fiscal years ending June 30 in each case:

1883-87 (annual average)....	\$160,000
1888.....	380,000
1889.....	600,000
1890.....	720,000
1891.....	1,290,000
1892.....	700,000

The values are reckoned in the depreciated silver currency of Mexico, the dollar of which is quoted at present at 68 cents in United States money.

—The rubber tree that most of the rubber houses have in their windows was introduced by George A. Alden several years ago, the parent being a thrifty tree that is now in the possession of the Harvard Botanical Garden. By the way, it is not a true rubber tree at all, but is the *Ficus Australianis* and produces a resinous rubber that has no commercial value.

—Just at this time it may be interesting to know that King Kalakau, late sovereign of the Sandwich Islands, looked up the question of rubber-production quite thoroughly. He reported that there were numbers of rubber-producing trees in his kingdom, but as to the commercial value of the rubber he was in the dark. It is possible that if the United States absorbs this territory, some time in the future, it may be a rubber-producing country.

England, and are not truly waterproof, but simply repellant. The cost of the process is trifling.

SOME NOTES FROM ABROAD.

SEEN in Paris, and nowhere else, are little machines consisting of short lengths of piping with copper-fastened leather couplings mounted on wheels, fore and aft, by which means the asphalt pavements are washed. Why the Parisians use these cumbrous machines in place of rubber hose is unknown. The use of one of these machines in New York would make an observer think he was in a museum.

The chief stores in London for the sale of waterproof goods are Charles Macintosh & Co., No. 19 St. Bride street, E. C.; Bax, No. 28 Cockspur street; Matthews & Son, No. 58 Charing Cross; Piggott, No. 117 Cheapside; Edmiston, No. 14 Cockspur street; Cording, No. 125 Regent street, and Walkley, No. 5 Strand.

The large business of furnishing submarine cables is done in England. Germany has an establishment and so has Italy, but the latter, like those in the United States, is for local needs and short lengths. In France the business is extending. The business is of so much importance as to require thirty-eight steamers, one of them as large as 5000 tons. Peculiar as it may seem, the Chinese government owns one of these vessels.

BRIEF ABSTRACTS OF RECENT RUBBER PATENTS.

AMONG recent patents issued by the United States Patent Office, embodying applications of India-rubber or Gutta-percha to a greater or less extent, have been the following. It is not practicable here to do more than to note the use of rubber in each case, with sufficient detail to enable those who are interested to decide whether or not to look into any particular patent more fully:

TIRES.

No. 494,575.—Pneumatic Tire. John D. Keating, Springfield, Mass.

The combination with a wheel rim having a series of recesses in its periphery of a hollow tire mounted on said rim and having an opening in its inner face; a flap hinged to said tire and adapted to cover the opening therein, said flap having a series of projections adapted to register with the recesses in the rim; and an apron, of flexible material, secured to said flap and projecting from the edges thereof, said apron being adapted to close the interstices between said flap and the edges of the opening in the tire.

No. 494,611.—Pneumatic Tire. Charles K. Welch, Coventry, England, assignor to the Pneumatic Tire and Booth's Cycle Agency, Limited, Dublin, Ireland.

In a wheel, the combination of a pneumatic tire, an endless ring made of a woven fabric secured to the outside of said tire and forming the tread portion thereof, and a coating of India-rubber solution for said woven fabric.

No. 494,947. Wheel-Tire. Calvin Wynn, Toledo, Ohio, assignor of one-third to William H. Standart, same place.

In a wheel, the combination with the metallic rim, of a tire of thin sheet metal essentially circular in cross section, the free ends of the tire being secured to the edge of the rim, and providing an air-tight joint to prevent the escape of air.

No. 495,218.—Elastic Tire. William J. Coe, Liverpool, England.

A vehicle tire comprising the rim, the elastic tire secured thereon, the bearing plate within the elastic tire and a series of disconnected springs interposed between the rim and tire, each spring being arched centrally creating the bearing against the rim, and having its extremities curved inwardly creating rounded bearing upon the spring arms, against said rim.

No. 495,277.—Vehicle Tire. George F. Stillman, Syracuse, N. Y.

In a vehicle tire, a rim provided with pockets, a pneumatic sack, a shoe embracing it, and sectional locking plates laterally expandible by the inflation of the sack to lock the edges of the shoe into said pockets.

No. 495,454.—Device for Mending Pneumatic Tires. Henry H. Cummings, Malden, and Robert Cowen, Cambridge, Mass.

A tire-mending device, comprising a receptacle having an attenuated outlet nozzle at one end, one or more power-applying levers pivoted to the receptacle, and a piston movable in the receptacle and provided with an adjustable bearing for said levers, whereby the levers may be caused to advance the piston in the cylinder, step by step.

No. 495,777.—Pneumatic Tire. Pierre Bouéry, Clermont-Ferrand, France.

A pneumatic or inflatable tire provided internally with a flap or series of flaps covering the exposed portion of the tire, and arranged to close a perforation or rupture of the tire by the internal pressure.

MECHANICAL GOODS.

No. 494,402.—Gasket-Packing. Richard Walsh, Philadelphia, Pa.

A flat rectangular bar of ductile metal having dove-tailed grooves in the flat sides thereof, in combination with strips of India-rubber of corresponding dovetailed form inserted in said

grooves, the whole being adapted to be formed into gasket packing rings.

No. 494,847.—Lawn-Sprinkler. Robert P. Creed, Cleveland, Ohio.

In a lawn-sprinkler, the combination of a supporting-frame or stand, a water-chamber rotatably mounted on the upper end of said frame or stand and adapted to be placed in open communication with the water-supply, an upright pipe or tube in open relation with said water-chamber and connected therewith in such a manner as to swing or oscillate at right angles or approximately at right angles to the direction of rotation of the water-chamber, a stop for limiting the rotation of the water-chamber and a piece of hose or flexible tube attached to the upper end of said pipe.

No. 495,795.—Concentrating-Belt. George Gates, Jackson, Cal.

An improved concentrator belt formed of rubber having its upper surface pitted to form elevations and depressions arranged in series to form independent channels for the material.

BOOTS AND SHOES.

No. 494,464.—Shoe-Buckle. Daniel F. Dalton, Waterbury, assignor to the Hammond Buckle Co., Rockville, Conn.

In a shoe-buckle in combination a tongue frame formed of wire bent to shape and comprising within the bent portion an eye or socket to receive the fastening means and with the free ends of the wire turned back upon the side parts of the frame and in the plane thereof, the cross bar formed of thin metal and having pintle sockets, and a swinging hook-shaped tongue pivoted to the cross-bar and with a broadened part adapted to pass between the adjacent sides of the back turned ends of the frame.

No. 494,598.—Sandal. George H. Russel, Newburg, Pa.

In a combined slipper and sandal, the combination of a vamp, and a sole, the vamp extending downwardly at its rear portions and terminating at opposite sides in advance of the heel-end of the sole and having its instep open or slit, a strap connecting the edges of the slit, and an elastic strap secured to the rear terminating-portions of the vamp adjacent to the sole and extending rearward and upward over the heel portion of the sole and terminating in advance thereof, whereby it is adapted to be stretched over the heel of the foot when inserted in the slipper.

No. 494,282.—Rubber Boot. Benjamin A. Pickering, Woonsocket, R. I., assignor of two-thirds to John Shambow and Parker J. Buxton, same place.

The improved boot herein described, comprising the top sole, the insole, the leg and foot lining lapped over upon and connected to the under side of the insole, the filling sole connected to the insole and resting between the lapped edges of the lining, the vamp lining, lapped over upon and connected to the under side of the filling sole, a filling sole, interposed between the lapped edges of the lining, and connected to the under side of the sole, a vamp, having its edges lapped and connected, and a canvas sole of a greater length and width than the soles, connected to the under side of the sole, the whole being vulcanized into a homogeneous mass.

No. 495,450.—Rubber Boot. Charles C. Braunwater, Muscatine, Iowa.

The combination with the upper part of the leg of a rubber boot, of a frusto-conical excluding attachment having a tubular head at its upper reduced end with a drawing string therein, and an extension top having its lower end secured to the boot-leg at the lower termination of the excluding attachment and arranged to be drawn up over the latter, said extension top be-

ing of greater cross-sectional dimensions than the leg of the boot and standing away equally at all points from the excluding attachment when drawn up, to form a pocket between the inner surface of the same and the said excluding attachment and also to compensate for the increase in size of the limb of the wearer.

SADDLERY GOODS.

No. 494,195.—Crupper. James W. Fitzgerald, Maysville, Ky.

As an improved article of manufacture, a crupper comprising a piece of tubular, elastic material having its ends connected to a back strap of a harness, and a non-elastic cord or tape of a greater length than the tubular, elastic piece and having its ends connected to the harness back strap.

NOTIONS.

No. 495,512.—Dress-Shield. Emile Pickhardt, Islington, Mass.

A dress-shield made in two separable parts one of which consists of a complete shield essentially the same as a common dress-shield, and the other of a piece of thin fabric which forms a foundation for the shield part proper, and is adapted to be sewed in the dress and to remain permanently fixed therein, with a separable fastening whereby the shield part is detachably secured to the secondary part.

MISCELLANEOUS.

No. 494,613.—Fastening for Dress-Shields. Emma F. Williams, Richmond, Indiana.

The herein-described fastener, consisting of a body part made of a single imperforated flat plate, formed at one end with curved teeth, adapted to be inserted through and bent into engagement with the article to be fastened, and having at its other end a keeper projecting slightly over its side and having its opening extending in the direction of the length of said body, and a pin having one end secured to said plate and its opposite end adapted to engage said keeper.

No. 491,791.—Sole-Cutting Machine. Margaret E. Knight, South Framingham, and Herbert B. Steele, Medford, assignor to said Knight, and Robert D. Evans, and John S. Lockwood, Boston, and David C. Marr, Hyde Park, Mass.

In a machine for cutting articles of curvilinear outline the combination of one or more patterns to hold the material while being cut, a rotary cutter held in a swiveling frame, a guide upon said frame to bear upon the periphery of the said pattern, or patterns as presented, a supplemental form with a cam to automatically adjust the plane of the cutter blades with relation to the curves of each pattern, and a second guide upon a projecting part of said frame, to bear upon said cam-surface and thereby move the cutters.

No. 491,351.—Pneumatic Weather-Strip. George L. Thomas, Brooklyn, N. Y.

A weather-strip comprising an expansible and collapsible tube inclosing a body of fluid, the inclosed body of fluid having such a relation to the interior space of the tube that when one portion of the tube is distended another portion will be collapsed.

No. 494,410.—Elastic Toy. Orville Carpenter, Pawtucket, R. I.

In closed or approximately closed hollow toys or images made of rubber or like elastic material, the construction of the toy or image with one or more parts of it of greater elasticity than the adjacent parts, whereby on squeezing the toy or image where it is of lesser elasticity, the air compressed in the toy or image will be caused to specially enlarge, control or change in form the part or parts of greater elasticity.

No. 495,166.—Fireproofing Composition. Frank S. Culver, Washington, D. C., assignor, by direct and mesne assignment, of two-thirds to Newton H. Culver, Detroit, Mich., and Carroll B. Hoffman, Baltimore.

The herein-described fireproofing composition, consisting of asbestos and plaster of Paris, with a binding fiber of jute or hemp.

No. 487,164.—Dress-Pad. Sara E. Stanley, Portland, Maine.

A combined dress-pad and shield consisting of a pad provided with a suitable filling and a shield having one flap within the covering of the pad and the other on the outside of the pad.

No. 488,148.—Fireproof Garment. Betsy J. Martin, Pomona, Kan., assignor of one-third to Walter D. Bagby, same place.

In a fireproof garment, the combination with a body-covering having a neck opening and surrounding buttonholes, of a mask or head-covering provided with mouth and eye openings, outwardly and reversely extended flaps inclosing said mouth-opening, a skirt portion extending through said neck-opening under the body-covering and provided with buttons engaging said buttonholes, a fastening device secured to the neck of said mask, and a supplemental throat or neck flap fastened at one end to the neck of said mask and adapted to have its free end engage said fastening device at a point beyond the same to lightly draw the mask about the neck of the wearer.

No. 493,616.—Tube for Viscous Substances. David W. Clark, Washington, assignor of one-fourth to Charles M. Clarke, Pittsburgh, Pa.

A tube for plastic materials having its body composed of an easily compressible resilient material.

No. 493,999.—Manufacture of Paint. John K. Hawkins, Mohawk, Tenn.

The herein-described mode of preparing paint, which consists in dissolving a suitable quantity of resin in benzine or gasoline, then placing said solution with lime treated with water to cause slaking so that the lime will slake in said solution and the steam generated will agitate and thoroughly mix particles of the lime in the solution, then pouring off the solution from the lime and then mixing dissolved rubber or Gutta-percha in the solution.

No. 494,064.—Garment-Stay. Henry Jonston, Ypsilanti, Mich.

The herein-described garment-stay, composed of the resilient blade having a surrounding adhesive coating, the guard tips, each consisting of a folded rubber strip having its ends secured to the blade by said adhesive coating, and two covering strips of textile material extended beyond the ends and side edges of the blade and tips and having their entire inner faces coated with said adhesive material, whereby the covering strips are adherent to each other and to the enclosed blade and tips.

No. 494,113.—Sulky. Sterling Elliott, Newton, Mass.

The combination with the frame, shafts and seat of a sulky of wheels less in diameter than the distance between the shafts and the ground, and provided with pneumatic tires.

DESIGN PATENT.

No. 22,151.—Comb. Paul Witteck, Butler, N. J., assignor to the Butler Hard Rubber Co., New York city. [Term of patent three and one-half years.]

Claim, a design for a comb.

No. 22,152.—Comb. Paul Witteck, Butler, N. J., assignor to the Butler Hard Rubber Co., New York city. [Term of patent seven years.]

Claim, a design for a comb.

TRADE-MARKS.

No. 22,453.—Tires for Vehicles. Union Cycle Manufacturing Co., Boston, Mass.

Essential feature, the word "Airtite." Used since September 1, 1892.

No. 22,674.—Certain Named Rubber Goods. Arlington U. Betts, Toledo, Ohio.

Essential feature, the representation of a Greek cross in red color.

No. 22,812.—Seamless Stockinet Dress-Shields. I. B. Kleinert Rubber Co., New York city.

Essential feature, the word "Columbia." Used since February 15, 1893.

A BELT made by one of the large rubber companies for an elevator in Illinois is over one-quarter of a mile long, wide enough for a horse and carriage to drive on, and weighs more than four tons. No wonder we need large cargoes of rubber.

A PIONEER CYCLE-TIRE FACTORY.

IN a recent number of *The Wheel* illustrations were given of the George R. Bidwell Cycle Co.'s pneumatic-tire factory, Nos. 308-310 West Fifty-ninth street, New York, together with other views showing the progress of working inside the factory. In connection with these illustrations *The Wheel* says:

"The pneumatic-tire industry is of recent origin, but to the Bidwell company belong the credit of being the pioneers in this country. In April, 1891, they turned out the first pneumatic tires on this side of the Atlantic, and during that year they manufactured a limited number and made preparations for the heavy trade which they controlled last year.

"The manufacture of pneumatic tires being a new industry, there were no skilled mechanics at their disposal, which was the greatest difficulty with which the company had to contend. They trained their own men, and they had to be initiated in double-quick time, for when the 1892 trade opened the company had all they could do to meet the demand for their style of tire.

"It required two shifts of men working twenty hours per day to execute their orders. It will be remembered that the manufacturers had to send the wheels to the factory to have the tires fitted, and in the busiest season they were not delayed more than two weeks. As a consequence the Bidwell company fitted many thousands of tires during the season of 1892.

"The present year brought with it a radical change in tire construction, with few exceptions, and the Bidwell company have kept abreast of the times and placed upon the market a tire distinctly original. Frank White, the tire man of the company, remarked to the writer: 'When we began to manufacture pneumatic tires we realized that patterns would change. Our aim was to get a tire that would hold itself on without a special rim. We experimented with fabrics and at last found what we wanted.

We struck upon the constrictive fabric, which we believe to be the correct principle.'

"The Bidwell tire is made in three parts. Between the inner tube and cover is a fabric tube which is so constructed that it contracts when the tire is inflated, and thus holds itself on. The company, however, recommend the use of cement to insure perfect safety. There is a great deal of work attached to making the fabric tube ready for use. When the material is received at the factory it is in tubular form. After cutting it the correct length it is split lengthwise. A special machine is used to mark off the eyelets and another to insert them. After the fabric is laced around the inner tube, they are placed on a wheel and blown up, then the outer cover is cemented on.

"The principle of the Bidwell tire is a peculiar one. When the tire is inflated sufficiently it holds itself on, and if blown to its utmost extent would twist the average wheel out of shape. It has the advantage of being fitted to a regular rim, and can be easily repaired. The road tire, which the writer examined, is one of the most resilient on the market. In the constrictive fabric tire the Bidwell company have a pneumatic which is strictly high grade, and one which recommends itself to makers of high-grade bicycles."

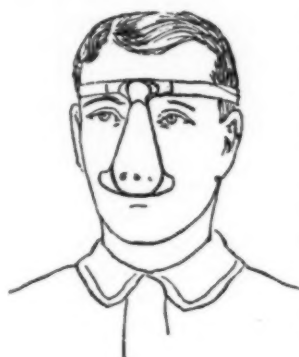
According to *The Wheel*, Mr. Bidwell was among the first to champion the pneumatic-tire. "When the tire issue developed, and all the world wagged and gagged about air, or no air, cushions, large solid or pneumatic, Mr. Bidwell staked his all on pneumatics, ordered them, talked them up and sold them. The next year, while many of the old and leading makers were chewing the cud of tire reflection, and had agents here, there, and yonder on the alert for the 'coming tire,' Mr. Bidwell jumped over to the Quaker City and secured the Thomas tire, which, for the first year in American cycle-tire history, divided honors with the Dunlop."

RUBBER IN THE GAME OF FOOTBALL.

THE game of football, which is now the representative college sport, has been played in America about seventeen years. In its present form the game is a modification of the Rugby of England. When first introduced into this country it was in a crude state as regards apparatus, the players devoting all their attention to a mastery of the rules. As the play improved in skill, it was found that injuries to players increased, and the devotees of the sport set about devising means of lessening the danger to those who participated in the contests. The result has been that the football-players of to-day are protected from injury by a number of ingenious devices. Were a team of players arrayed in the uniform of fifteen years ago to meet a modern eleven in a few vigorous rushes, the wearers of the old-time appliances would doubtless feel much discouraged before the first half was over.

In the matter of improvement, football apparatus has kept pace with baseball. Back in 1870 the baseball mask was unknown, and catchers protected their teeth from injury by holding a square piece of rubber in the mouth. Black eyes and broken noses were plentiful until the mask made its appearance. To-day the baseball catcher in his mask, heavy breast-pad, and large catching glove is about as well protected as possible, unless he were to stand behind a board fence and pick the ball up from the ground. So it is with the football-player. In the early days of the game the clothes which the latter wore were not calculated to stand the strain of many scrimmages. True, the canvas jacket came into use quite early, but this was not so much on account of its protective qualities as owing to the fact that a smooth, close-fitting canvas garment is not an easy thing to grasp, and tackling is thus made difficult.

One of the most serious drawbacks to the game is the liability of players to receive broken noses. During the fierce collisions of opposing rush lines, noses are apt to come in violent contact with heads or shoulders, and the result is invariably disastrous to the noses. Valuable players, who are all right in other respects, are unable to play because of an injured nose. This fact has led to an invention which makes it possible for a player with a broken nose to continue in the game. Cranston, the great center rush of Harvard, had a weak nose and declined to play on that account. Arthur Cumnock, captain of the team, was very desirous of having the assistance of Cranston, and set his wits to work, with the result that he got up



RUBBER NOSE-MASK.

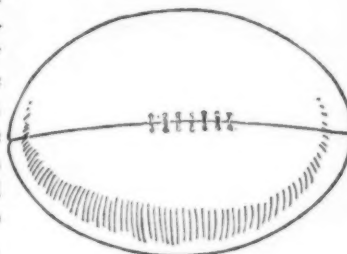
a nose-mask, which enabled Cranston to play without danger to his nasal appendage. The mask has since been improved upon. It is made of fine rubber, will not injure opposing players, and affords protection to both nose and teeth. The nose-mask is now a common sight on the football field.

Those who have watched football contests have no doubt noticed that the object of the fierce contention

was a watermelon-shaped object that was kicked, pulled, hauled, crushed into the earth, and generally maltreated. Whenever the players are piled in a heap ten feet high it can always be depended on that the uncomplaining football is on the ground at the bottom of the heap. Players are hurt in nearly every scrimmage, and the umpire calls "time" until the injured men are doctored, but no matter how badly the ball is misused, no one pays any attention to it. The football is about twenty-seven inches in circumference, and is made of the toughest cowhide. A rubber bladder is put inside the leather, and when the bladder is inflated the outside cover is laced tightly, and the ball is ready for business. The peculiar shape of the ball makes it difficult to kick and handle. It is not an easy matter to clutch the ball and hold on to it while running at full speed, and the least slip is fatal, for there is always an opposing player to pounce on the leather.

The ball used by the players of the association game is perfectly round, and runs in size from 22 to 33 inches in circumference. The association game is one of kicking, the ball flying from one end to the other without rest.

—*New York Sun.*



COLLEGE FOOTBALL.

THE NEW "MARVEL" SHOE.

FOR a number of years Mr. Joseph Banigan, of the Woonsocket Rubber Co., has had a bright inventor at work for him in Woonsocket solving the problem of a molded rubber shoe. He said very little about the matter until a few months ago, when he practically announced to the world that the shoe was a success by having the Marvel Rubber Co. incorporated, with a capital of \$500,000, for its manufacture and sale. Since the erection of the new "Alice" mill he has turned the old Woonsocket plant into a factory for the manufacture of the "Marvel" shoe. The washing, drying, mixing, and calendering of the rubber are processes in the making of these goods that require no description here, as they are identical with those seen in any factory, with the single exception, perhaps, that a good grade of gum is absolutely necessary for this work. After leaving the calender, the stock is wound in thin sheets upon reels and carried to the cutting-room. It is then cut out into pieces for the making up entirely by dies. The pieces consist simply of the sole, cut with a surplus amount of stock about the heel, and a piece of rubber in the shape of the upper, the heel part being open. These, with the addition of a small piece of frictioned cloth in the tread of the sole, and another in the heel, are placed in books and sent to the machines where the shoe is both molded and vulcanized. These machines stand in a long row, while back of them is a swinging rack where are piled the books containing the unvulcanized gum. The

machine for vulcanization is a marvel of simplicity and ingenuity. It is, in a word, a hydraulic press and mold combined. When open it shows the sole part of the mold thrown back, the last—which is made of highly-polished metal—standing up about one foot above the part of the mold that forms the upper. A piece of rubber is laid in the lower half of the mold, the sole strip is laid on the top of the last, a spring is touched, the last drops down into its place, the upper half closes over it and the steam is turned on automatically. A pressure of about twenty tons causes the softened rubber to flow around and form a perfect shoe, while the heat in an incredibly short time,—not more than five minutes,—vulcanizes and completes the shoe. The press is then opened, and the shoe taken out and put into a car, when it is taken to the trimmers.

In order to make a perfect shoe, of course there must be an excess of stock, which flows out through neatly-constructed vents in the side of the mold. This appears as a fringe showing the line of division between the two halves of the mold, to remove which an exceedingly ingenious trimming device was designed by the inventor. Being familiar with the manner which rubber-men trim with a very sharp knife,—that is a series of quick drawing cuts,—he arranged two keen knife-blades which, running close together something like the blades of a mowing-machine, whirled by a flexible rod, cut this excess very quickly and smoothly. When trimmed it is handed to another opera-

tive who turns off the slight suggestion of a bead that is left, with a little emery wheel on another flexible shaft, and the shoe is so neatly trimmed that no line at all is visible. The next process is to remove the excess of sulphur, which is done by immersing the shoe in a boiling alkaline solution and then washing it in clear water. After the washing and drying they are varnished and sent to the packing-room.

The shoe thus turned out is really a marvel of neatness and simplicity, and in no other way could such a smooth



THE MARVEL SHOE.

surface be secured as comes from the highly-polished molds. The shoe, being made of almost pure rubber, conforms itself to the foot so nicely and with so little effort that there is no necessity for rights and lefts, both shoes being made straight. Nor is this the only advantage it possesses. It is made of one quality of gum throughout,—heel, sole, and upper,—the small piece in the sole and heel being the only bit of fabric about it, and that is where it

is needed, as there is a possibility of a puncture in the tread or the heel.

This shoe cannot slip at the heel, and if it gets soiled from a muddy leather shoe it is a very simple matter to wash it out and make perfectly clean, an advantage that will be appreciated by wearers of patent-leather shoes. The inventor claims that there is a mistaken idea concerning the drawing of the foot by a pure rubber shoe and says that the rigid cloth lining in the ordinary rubber shoe is more likely to draw than the unlined. The Marvel is not made for the cheap trade, as a first-class quality of stock is absolutely necessary for turning out a good shoe, and in this the customer can be the judge, as in no other shoe. At the same time, it is claimed that in spite of the higher cost it is the cheapest shoe made, as by actual test the Marvel has outworn four pairs of regular cloth-lined shoes. This invention is a new departure in the way of rubber footwear, and the Marvel company, having their processes and machines thoroughly covered by patents, have no competition, and are simply catering for the best trade. The shoes are close-fitting when put on properly.

The inventor of the process, who by the way is the inventor of an exceedingly ingenious machine for molding miniature rubber boots, is H. J. Doughty. Mr. William J. Banigan, son of the founder of the Woonsocket Rubber Co., is the general manager of the Marvel Rubber Co. and is exceedingly successful in pushing the sales. Indeed, the output of the factory has already become inadequate to the calls for the goods, and the plant is being increased to meet the requirements of the trade.

PRESIDENT BANIGAN TELLS WHY HE HAS SOLD HIS PLANT.

[From the Providence (R. I.) Telegram, April 24.]*

WHEN interviewed by a *Telegram* representative last week concerning the report made that he had become a director in the United States Rubber Co., Joseph Banigan, president of the Woonsocket Rubber Co., stated that while he had not a share of stock in the United States company and was not a director, he had received offers from the company and had placed experts upon their books.

That such examination was satisfactory was made apparent at the annual meeting of the Woonsocket Rubber Co., held to-day at Woonsocket, when the proposition of the United States company to buy was accepted. Interviewed by a *Telegram* correspondent, Mr. Banigan said to-day that he had been approached several times by the United States Rubber Co. with flattering offers to dispose of his stock in the Woonsocket Rubber Co., but he has always refused to entertain any proposition that did not include the smallest stockholder as well as the largest. Finally they submitted such an advantageous offer to all the stockholders of his company that they felt they could not re-

fuse it, and at the annual meeting to-day a large majority decided to transfer their holdings to the United States Rubber Co.

Mr. Banigan stated that he also refused to sell the Lawrence Felting Co. and the Marvel Rubber Co. until the proposition from the United States Rubber Co. had first been submitted to the stockholders of the Woonsocket Rubber Co. and accepted by them.

The United States Rubber Co. was formed during the last part of 1892. It was the outgrowth of a sentiment among the rubber manufacturers of the country that some arrangement was necessary for mutual protection from the operations of speculators in rubber gum and the competition of inferior goods made by establishments in different localities, which have sprung up from time to time, to subsist to the cost of more important concerns and the public in general.

The history of the rubber business in the United States is one of many failures and few successes, as citizens of this State, who are familiar with the repeated failures of rubber plants in this State, know. A great deal of money has been invested, only to be lost in unfruitful endeavors to maintain a position in the commercial world. Perhaps

* It is understood that a controlling interest in the stock of the *Evening Telegram* is owned by Mr. Banigan. This article is reproduced, therefore, as equivalent to an official statement from the president of the Woonsocket Rubber Co.—THE EDITOR.

the most recent instance of such failures is that of the Pará Rubber Shoe Co. of South Framingham, Mass., which, with a capital of \$1,000,000, was unable to do a successful business. One of the companies which has been most successful among the successful is the Woonsocket Rubber Co. of this State, of which Mr. Joseph Banigan is the president. It has had a fortunate career from its beginning, and to day it is prosperous in the fullest sense, and the leading corporation in the field of rubber productions. Its home expansion has been the result of an ever-enlarging preference on the part of consumers for its stock, and its extension to other places has been occasioned by the necessity for providing greater and improved facilities to meet the demands of the trade.

To understand how difficult it has been for rubber-manufacturers to figure out a profit upon their business for a year, it is necessary to know how that business is transacted, and in what way the price of crude rubber enters into the situation. On the first of April, in each year, the manufacturers prepare their lists of prices for the year, basing the figures they feel warranted in offering upon the price of raw rubber at the time. It has frequently been the case that after the prices have been determined upon rubber, speculators have secured a "corner" on the pure gum gathered in South America and forced the price thereof from its normal state of from 60 to 70 cents a pound up to double those figures. Only a few years ago one of the most expert and noted speculators, Baron de Gondoriz, pushed the price of crude rubber to \$1.28, and it was but a year ago that he drove it to between 90 cents and \$1 a pound. It is true that in both cases he failed miserably, dragging down with him those who were assisting him, but it was an expensive experience for the manufacturers, as they were obliged to close down their factories to protect themselves. It will be at once seen that with gum selling at such a price, and the market in the control of these southern operators, manufacturers must risk a fortune every year on their gum purchases, in case they use any quantity of it. The question of procuring this material is one which involves no little consideration and more or less perplexity. Some idea of the cost of the crude article can be understood when it is stated that the Woonsocket company, last year, paid over \$2,000,000 for gum alone.

The smallest manufacturers, in an endeavor to overcome this great expenditure, grind up a large quantity of old material with a little new gum and go into the market with a cheap substitute for first-class rubber. Against the low price put upon such goods, manufacturers of the best wares experience difficulty in placing their wares. The public is a sufferer, too, for it is led to take poor articles in place of those of reliable grade, and the result is that boots and shoes sold at small prices quickly go to pieces.

The United States Rubber Co. was organized not only for the purpose of preventing the speculators from plying their craft, but to raise and make permanent the standard by which goods will be judged. Being an enormous consumer of rubber, the new corporation will be in a position to prevent speculation and fictitious values being placed upon it, and it proposes to keep the price of the raw ar-

ticle at a level and as free as possible from fluctuations as the yield will permit. In other words, organization for such relief will benefit the company in a way that could not be brought about with manufacturers constantly cutting into each other and presenting inferior substitutes for rubber in order to quote lower prices. The economy the new company will practice in the acquirement of its material and the construction and equipment of its plants will also enable it to prevent the waste which has and must occur where individual competing plants undertake to do business.

While the price of rubber footwear has apparently been advanced, yet as a matter of fact when the improved quality is considered, the price is really a reduction instead of an increase. The advantages to the public in the way of cheap and good goods will become more evident as time advances, and the influence of the late departure is perceived. Undoubtedly, the policy of fixing and compelling adherence to a prescribed standard of excellence in factory products, which the United States company will foster, will rapidly work a great advantage of a popular nature.

The Woonsocket company owns three immense plants, located at Millville and Woonsocket, the former works turning out boots and the latter shoes. The Marvel Rubber Co., which is also included in the transfer to the United States Rubber Co., manufactures rubber shoes by a patented molding process, making an exceedingly fine and durable shoe, which sells at \$1 a pair, and the success of this company demonstrates that the public is prepared and willing to pay a reasonable price for an article of good quality. Included in the transfer to the United States company also is the Lawrence Felting Co., controlled by Mr. Banigan, which manufactures felt goods of all kinds, special attention being paid to linings for rubber boots and shoes.

The capital stock of the Woonsocket Rubber Co. is \$2,000,000, and that of the Marvel company \$500,000. The United States Rubber Co. is capitalized for \$27,373,600, of which \$13,388,800 is preferred, and \$13,984,800 common stock.

RUBBER COVERINGS FOR FIRE-PROTECTION.

ONE thing was demonstrated at the fire of Tuesday morning. That is the need of rubber coverings with which to cover the goods and chattels in a burning building, while the fire department is pouring on water to extinguish the flames. By having these cloths the loss on furniture and stock in houses and stores would be reduced in a very considerable degree. It would pay the insurance companies to furnish these articles, and even to put them on the goods when occasion demands. These rubber coverings are used by all the departments in the larger cities, and good results have ensued. There is no reason why the same scheme shouldn't work well here.—*Newburyport (Mass.) Herald, April 11.*

SOME of the cheap-suspenders in the Bowery, New York, have lately failed, and the push-cart with the attendant Russian is not met so frequently as it once was. The suspender-man buys his cheap web from the manufacturer and cuts it up, employing the cheapest of labor.

EFFECTS OF COMBINATION ON THE COTTON-OIL TRADE.

By Erwin W. Thompson, Atlanta, Georgia.

ABOUT six years ago several large owners of cotton-seed oil mills in the southwest formed a compact for their mutual protection against destructive competition in the seed market, which at that time was fast destroying the hitherto enormous profits in the business. This combination was known as "The American Cotton Oil Trust." Trustees were appointed to receive the corporate stock of the companies interested, and issue therefor "trust certificates" (three to five shares of the latter being exchanged for one of the former). The net earnings of each mill were to be transmitted to the trustees to be distributed as dividends on the trust certificates.

Within a short time this trust forced in nearly all the important mills then in operation, by paying exorbitant prices for seed in the districts naturally belonging to the outside mills. When this was finally accomplished the trust reduced the price of seed throughout the country. Advancing the price of the products was not so easy, but by the skilful management of this trust something was done in that direction; and the entire business was systematized and brought into a state of uniformity under the best methods. Its success in monopolizing the trade, and in making large gross earnings, was for two years phenomenal. But the heavy expense in organizing and in whipping in outside companies reduced the net profits from each mill to a point below its former condition, and prevented the trust's paying dividends.

At this time, on account of the evident profit in the actual manufacture of cotton oil, a large independent corporation was organized. They built a number of new and improved mills, and demonstrated, the first year, that successful competition with the trust was possible. This encouraged further mill-building by independent companies. The business had by then been brought into such public notice, and the products had been so well advertised, that the demand had sufficiently increased to balance the effect upon trade of the large increase in production.

At the present time the trust has been obliged to abandon its original purpose of controlling the business, and devote its entire time to maintaining its own organization, and to improving its old mills so they might be able to compete with the independent mills, which, in the majority of cases, are even now physically better than the trust mills.

In changing its front, the trust has entirely reorganized and resolved itself into an ordinary corporation, differing, in its effect upon the trade, but little from its competitors.

EDITORIAL NOTE.—The recent developments in the combination of rubber-manufacturing companies have been on such an important scale as to attract attention in every line of industry, and to call renewed attention to the effects of combinations upon manufactures in general. In this connection it is presumed that the experience of previous industrial combinations will prove of interest. THE INDIA RUBBER WORLD takes pleasure therefore in giving space to a contribution by a prominent manufacturer of cotton-seed oil, in a southern city, who has had ample opportunity to study the effect of combinations, by means of a trust and otherwise, on the industry which he represents.

RAILROAD-MEN ON RUBBER HOSE.

AT a recent meeting of the New England Railroad Club held in Boston the subject of the continuous heating of railway trains by steam was debated. So far as the discussion related to rubber, it disclosed two or three items of interest. One was that a standard connection ought to be adopted by the government, considerable trouble now being found in coupling the cars of different roads so as to make up a train.

Another subject is interesting to rubber men for the reason that they find it so difficult to make a hose that will stand the great pressure injected into it at times by reckless engineers. Especially is this the case when a train taken "cold" from the car-house has to be heated within a few minutes so that it can be made comfortable for passengers. The engineer, to do this, will put on great pressures, frequently bursting the hose and always rendering it liable to become over-vulcanized. Heating stations were suggested, but one railway-man said that he had forty-one initial points from which he started trains and that method for him would be too expensive. The fact was disclosed that some roads kept their cars heated while at rest; others objected to this because the atmosphere

was not fresh; and others said that warm air was not impure and materially aided in the proper washing of cars.

Another fact disclosed was that twenty pounds of steam was sufficient to warm a car properly on an average day in winter, although fifty pounds on zero days was necessary. Engineers sometimes force twice and three times as much as the latter named into a train of cars at the start to heat them up quickly.

Small pipes and hose were recommended; half-inch pipes being the cause of much mischief, as not more than six cars can be properly heated with ordinary pressure. Three-quarter hose would be more satisfactory. Automatic controllers of pressure were also suggested.

The whole discussion seemed incidentally to refer to rubber appliances in connection with iron pipes, and is of interest to manufacturers as leading up to the obviating of some troubles that now worry the mechanical-goods men who are cultivating the railway trade.

THE hard rubber manufactured from the ruberoid of the Standard Paint Co. (New York) still grows in favor and it is predicted that it will have a large future.

GOSSIP ABOUT RUBBER-MEN.

MR. RATCLIFFE HICKS, president of the Canfield Rubber Co. (New York), is one of the representatives of Tolland county, Connecticut, in the State legislature, at Hartford. He delivered a speech before that body on March 16 last, in favor of a bill abolishing capital punishment, a copy of which, in pamphlet form, has been received at this office. It contains a strong protest against America longer meriting the title of "the hanging nation of the world," and points out that in those States in which capital punishment has been abolished life and property are fully as safe as in other sections of the country in which the gallows remains as a legal institution.

* * *

THE ancient and honorable Brown University, at Providence, R. I., has not a few alumni in New York, who testify to their affection for their alma mater by maintaining in active condition a Brown University Club. At the annual dinners of the club Mr. Ratcliffe Hicks takes an active part, and at the dinner which the Club gave at the Hotel Waldorf on the evening of April 8 there was no exception to the rule. The rubber trade was further represented on that occasion by Mr. Joseph P. Earle, of the rubber-brokerage firm of Earle Brothers & Co. Mr. Earle soon afterwards took passage for Bolivia, for an absence of six months, as one of the party which accompanied the Baron H. Arnous de Riviere, whose proposed enterprise in exploiting the rubber of the Beni-river region has already been mentioned in this journal.

* * *

ANY mention of the rubber firm of the Messrs. Earle naturally suggests the name of Charles R. Flint, whose beginning in the rubber business was in connection with them. Mr. Flint's name has been mentioned in print rather more frequently than usual during the past month. There was ample reason for this, if for no other reason, in

the fact that within this period the United States Rubber Co. and the Mechanical Rubber Co.—both due to his energy and suggestion—have declared good dividends out of their earnings, which is the first direct evidence of the practical character of his work as an organizer. Another point doubtless no less gratifying to him is the success of the former corporation in absorbing the Woonsocket Rubber Co., one of its biggest and strongest rivals. Mr. Flint is well in the swim with the New York financiers. He happens to be a brother-in-law of J. Edward Simmons, president of the substantial Fourth National Bank of New York, and has various connections with other controllers of capital that render it easy for him to attract money to such enterprises as may engage his attention favorably.

* * *

THE pleasant duty of entertaining notable foreigners who have come to the United States to visit the World's Columbian Exposition has begun in earnest, and the hospitalities which these guests are receiving in New York will probably have the effect of doing almost as much to commend our new world in certain European countries as the wonderful industrial display that has been successfully inaugurated at Chicago. One of the entertaining committee appointed by the World's Fair officials is Mr. Charles R. Flint, and several of his colleagues upon it were associated with him in the recent organization of the United States Rubber Co. The first of the guests to enjoy the hospitality of this committee was the Spanish Duke de Veragua, a lineal descendant of Christopher Columbus, to whom the freedom of the city of New York was extended. Naturally the Spanish residents of New York, through their various societies, came into prominence in this connection, including Mr. Juan M. Ceballos, also a member of the rubber-importing trade, who was a member of the principal committees organized to do honor to the Duke.

WET-WEATHER WEAR FOR WOMEN.

THE newest mackintoshes, both imported and domestic, are supplied with capes—either one or two. They have no sleeves, and are tight fitting in the back and very loose in front.

The best mackintosh has an outside of English serge, so very fine and glossy that it looks like silk. It is also lined with serge, inside the rubber part of the garment, and thus one does not come in contact with the rubber at all.

The best thing about the new mackintosh is its hood. This is square and is not shirred or gathered at all. When off duty it makes a pretty ornament for the back of the mackintosh on account of its very novel cut. And, when needed, it is really quite becoming drawn over the hat. This style of hood is known as the "Robin Hood" shape.

A very fine garment, with serge both outside and in,

costs \$28. But one can, of course, get a fairly good one for \$17. Electric blue is the favorite shade for this season's mackintosh, although tan and gray are much worn.

A pretty idea is to face the mackintosh cape with gay silk, to match the hat trimmings if the latter be bright, and also to line the hood with the same and lightly face the cuffs and collar.

A rainy day fad with those who must brave all weathers, and who still must dress well, is to choose a cape lining to match the umbrella, the umbrella to match the gloves, and the gloves to match the hat and veil.

In buying a mackintosh there are seven cardinal rules.

Be sure that it is big enough to slip on easily over your winter coat.

Be sure that the sleeves, if sleeves there be, will accommodate the puffiest dress sleeves that you own.

Be sure that the cape will unbutton so that it can be left at home during hot July and sultry August.

Be sure that there are no creases in it from long lying in the shopkeeper's box.

Be sure that the mackintosh is not too long. Don't let any one persuade you that "you can easily cut it off."

Be sure that none of the seams have been missed and left unfastened in the making.

And finally be very sure that your mackintosh is of fresh rubber, or it will break as readily as an old rubber band.

For those who do not want to spend so much money upon a garment which is only to be worn in the rain, there comes a kind of storm coat which answers the purpose admirably.

It has an outside of rough serge and is lined with rubber. There is no inside facing, but this can easily be sup-

plied at home. The cost is only \$5. This is not much when one considers the quantity of material actually required for the outside alone.

A very good umbrella is made to carry with the inexpensive storm coat just described. It is of silk, but there is a thread of cotton or linen in the silk to render it stronger.

Such an umbrella wears for years, and looks respectable to the end.

Rubber can be bought by the yard for the use of those home dressmakers who want to fashion their storm coats at home.

The model coat would have an outside of silk bengaline. Then a rubber lining. And, finally, a lining of soft and non-spotable silk. The cape should have two small pockets for car fare and handkerchiefs.—*Boston Globe*.

SHRINKAGE IN COMPOUNDED RUBBER.

THE question of the shrinkage in rubber and how it may be regulated is constantly coming up, and many manufacturers to-day do not understand how it can be controlled. In fine work, where they are very anxious to get rid of the shrinkage in rubber, they are exceedingly careful that the gum shall be fully dried. Then, after mixing, it is carefully refined and the calender heated until, when the stock is running off, it will run smooth on the roll and will not open out even if a knife-blade is drawn across it cutting it open. If, in the language of the calender-room, it crawls on the roll, it is not right and the stock should be warmed up again in the refining mill or the calender should be made hotter. Of course it may be that there are damp ingredients in the batch, or that the rubber itself is not thoroughly dried. Shrinking can only give trouble while the goods are being made up, as it throws them out of proper proportion and often makes the vulcanization defective. Where the rubber is spread upon cloth and is stayed in places by adhesion there is no special danger of shrinking. There is such a variety of conditions entering into the different stocks that are spread, that no iron-clad rule can be given to overcome it. About all a man can do is to study each separate compound, if troubled by shrinkage, and the various heats and see that the mixing is done properly, when he will undoubtedly be able to strike a method that will keep the product the same from the calender until the goods are cured. A first-class calender-man, although he often cannot explain exactly how he arrives at results (if studied by one who is interested in the matter), will be seen to have a system of varying his heats, carefully watching the refining of the gum, and in fact studying each compound and knowing its special needs,—a proceeding that will almost always result in successful work.

THE YERDON HOSE-BAND.

WILLIAM YERDON, of Fort Plain, N. Y., has purchased a site on Main street in that town for \$4650, and expects soon to begin the erection of a three-story brick building 50x110 feet, the first floor of which will be devoted to the manufacture of the Yerdon hose-band which was illustrated and described in THE INDIA RUBBER WORLD of November 15, 1891. Mr. Yerdon has been making his hose-band since 1890, when it was patented. The business of manufacturing it has outgrown

the original quarters, and this has led to the purchase above mentioned. The *Mohawk Valley Register* (Fort Plain) contains a mention of Mr. Yerdon's product from which the following is condensed:

The band is adjustable and is used to connect hose with the coupling, holding it firmly and securely. The pressure is at all points and there is no possibility of bursting or breaking the rubber hose. This band has been a success from the start because it filled a decided want. The fact that some of the largest railroads in the country are using and that others are adopting this band shows its value. The metal used is a composition of copper, tin, and aluminum. It is almost as "twistable," when bent, as rubber, and yet is as strong as steel. Its two shoulders (which make it adjustable in any vise), its tongue and nut lock are among its useful features. The bands are made in sizes from one half inch to six inches in diameter. Shipments have been made all over the United States and to many foreign points. The bands are in use on the Central, on the West Shore, on the Baltimore and Ohio, on the Boston and Albany, and other leading railroads. The Baldwin locomotive works of Philadelphia, the Providence locomotive works, and the locomotive works at Dunkirk, N. Y., will all have exhibits at the World's Fair equipped with the Yerdon hose-band. The entire process of casting and finishing is done at Mr. Yerdon's factory. Mr. Yerdon has also perfected several other inventions.

A NEW FABRIC FOR PNEUMATIC TIRES.

THE Glendale Elastic Fabrics Co., of Easthampton, Mass., is experimenting with a woven tube for the inner lining of a pneumatic tire. It is intended to replace the canvas or winding cloth which in various ways is universally used by tire-makers. It will be readily seen that there is quite a difference between the inner and outer circumference of a tire and the problem presented as to a lining is to devise a fabric that shall be a tube yet not be stretched on the inner side. It must be uniform, and also capable of a varied weight if it were wished. The Glendale Co. began some time ago to experiment, and now have a tube so woven that when it comes from the loom naturally assumes a circular form like a pneumatic tire in place, and can be varied in weight in any part without affecting any other part. It seems to fit the theory of all the tire-makers exactly. A quantity has been made, and will be this summer extensively tested by prominent makers.—*Bicycling World*.

THE REPORTED NEW RUBBER SYNDICATE.

[From the New York Commercial Bulletin, April 21.]

REPORTS are in circulation in rubber circles of this city that the Baron de Gondoriz is organizing another syndicate to corner crude rubber. Some of the reports are that the syndicate has been actually formed and has already acquired most of the floating supply of the raw material. The syndicate is, it is said, composed of some of the largest receivers at Pará, and has the support of a well-known banking firm in London, where the Baron de Gondoriz has located to manage the movement.

Some members of the trade are, however, skeptical as to the success of the new syndicate. They claim that the present deal is bound to follow the unsuccessful ones that have previously been conducted by the Baron, notably those of 1891 and 1883. The present attempt at a corner, it is argued, is antagonistic to the Rubber Trust, since it will force the trust to pay higher prices for its supplies and it is considered quite probable, therefore, that the trust will fight the syndicate. By the acquisition of the Woonsocket Rubber Co. the trust may now be said to include all the large companies, except the Boston Rubber Shoe Co.

Charles R. Flint is the chief spirit in control of the Rubber Trust, though it is said that his financial interest in it is small. It is said further that by means of contract system many of the caoutchouc-gatherers of South America are under the authority of Mr. Flint, who stores their product in his own warehouses at various South American ports. The supplies brought to this country in his own vessels are gaged according as he thinks the market needs them. The Rubber Trust has contracts in turn with Mr. Flint, and it is the directors themselves who are largely responsible for Mr. Flint's judgment upon the amount of supplies to be ordered to this country every year.

It is considered quite probable, therefore, that the strong statistical position on which the Baron is basing his hopes of a successful corner is being manipulated by Mr. Flint for the trust.

A prominent member of the rubber trade, who is in a position to speak with some degree of accuracy of the Baron's plans, made the following explanation of the matter yesterday in answer to questions:

"The object for which the syndicate has been formed is to make money by advancing the prices of crude rubber; and the promise of success is based on the support to be furnished by a favorable statistical position. The crop year is reckoned from July 1 to July 1, and the heaviest receipts are during the months of November, December, January, February, and March. On the 1st of February the crop showed 1600 tons deficit, comparing with last year. Part of the deficit was made in February, while March made up the remainder. April, so far, is behind the record. It is a trade belief that is generally accepted that the production of rubber increases every year between 8 and 11 per cent. This year it does not seem likely that there will be such an increase. On the other hand, this year's consumption is proving the largest on record.

"With the aid of this favorable condition the Baron de Gondoriz has, I am informed, associated himself with

the largest and wealthiest receivers in Pará for the purpose of securing high prices for crude rubber. 'Receivers' are those who send expeditions into the interior to gather the rubber and bring it down to market. The syndicate has already acquired a certain amount of rubber, which is now being held in London and New York, and to some extent in Pará. The quantity is unknown.

"The Baron left Pará last month and is now in London, where it is said he proposes to locate as the agent of the syndicate, for the purpose of managing the rubber. The receivers can always get any money they require. I am informed that a London banking firm that has been in previous rubber transactions is interested in the syndicate.

"The local market is without doubt in a very strong position. The United States Rubber Co. (the Rubber Trust) to a great extent controls the local stock in New York, and what is not owned by the trust is owned by the new syndicate. While there is an apparent sufficiency of rubber in first hands, as reported by brokers, the fact seems to be generally lost sight of that the stock held by the United States Rubber Co. virtually represents the supply required for the different companies interested in the trust. In other words, before the organization of the United States Rubber Co., the companies that now compose that company would, as a rule, keep a supply of raw material on hand in the drying-rooms almost equal to one-half of the present stock of the United States Rubber Co. If the stock were now held as in former times, the stock in first hands would be practically wiped out."

The last deal by the Baron was in 1891, when he began operations as early as January. At that time the price of fine Pará rubber was quoted at 75 cents per pound. The syndicate bought all the crude rubber that was offered, and the price advanced to 92 cents per pound on the regular market and some private settlements were made at as high as \$1. It secured about 90 per cent. of the visible supply—mostly the previous year's crop. In June, when the first of the new crop began to come down the Amazon river in small quantities, dealers began to hold off, and in consequence prices began to drop. The bankers became frightened and the entire deal collapsed.

In 1883 a similar attempt was made to corner crude Pará rubber by the same man who is at the head of the present syndicate. The Baron was at that time at the zenith of his fame, and had about \$10,000,000 at his command, a great deal of which was supplied by the banks at Rio Janeiro. The price was run up from 40 cents a pound to \$1.20, but there the matter ended. American manufacturers closed their mills, or at least a number of the largest did, and Vianna was left with nearly the whole year's crop on his hands, and another one rapidly coming in. The result was utter ruin, and the Baron for a long time kept out of sight.

* * *

[From the Boston Globe, April 25.]

It has been reported from several sources that another attempt was to be made to corner the rubber market. The primary source of this information is well known to Boston manufacturers, who see in it an attempt to force up prices at the time they are supposed to be ready to buy materials

for the production of next winter's goods. The alleged attempt to corner the market is a failure from the start.

Baron Vianna, who has held previous undertakings of the kind, has invariably proved a failure. In 1883 he ran the price of Pará rubber up to \$1.20, but as he refused to sell on the rise he was forced to sell out on the decline at prices which were below cost. In 1891 he succeeded in performing the same feat, only the price did not go above 02c. In each instance he allowed outsiders to buy enough rubber to carry the factories along until his backers lost confidence in his scheme. Two years ago his American holders sold him out when they had run short of supplies. Then his syndicate had an alleged backing of \$10,000,000. He called for \$5,000,000 more. Had his company supported him, American manufacturers would have been forced to accept his rubber at his terms. The additional money did not come forward fast enough and his holders here called for such unreasonable margins that his undertaking collapsed.

It has ever been their scheme to support his undertaking as long as their own supplies hold, and then to bear the market when their stocks run short.

The baron in this instance has no financial backing. He has induced dealers in Pará to consign 100 tons of rubber to an English house, and this he is attempting to sell on the English markets. Not a pound of this is con-

trolled by him. He has also succeeded in inducing Pará dealers to hold about 500 tons out of the market.

At the start the market advanced to 80c., but now that manufacturers have got hold of the inside of the deal the price has dropped to 74c.

The baron has no money of his own and Brazilian financiers have no confidence in him, so that he cannot secure support from any quarter. The officers in his 1891 syndicate have but recently been granted their freedom by the courts.

To corner the rubber market requires more money and sand than the Brazilian banks can put up. Those who are able to handle such an undertaking have forfeited their right to ask support in the republic. The market has grown to such a size that its control is beyond the reach of any class of financiers south of the equator. Other sources of supply than the Amazon basin are being rapidly developed and the American manufacturers will henceforth buy supplies at a real and not a fictitious value.

The factories have had a very successful year, and another season has closed with stocks cleaned up and no surplus to be carried over into another year.

Manufacturers are not buying heavily at present. The factories do not require large supplies now, and by holding off, prices will drop to a basis where the laws of supply and demand will be the only factors governing the market.

RUBBER IN ARTIFICIAL-FLOWER MAKING.

THE use of rubber by the manufacturers of artificial flowers is not one of recent origin, but has been in practice in France for as many years as the old workmen in this country can remember.

The principal seat of the artificial industry is Paris, the many manufactories in its suburbs making it the mart whence the great business divides and permeates in smaller ways to the four corners of the globe. As a rule the flower completed in all its shape and beauty comes from there, but the spirit of individual progress seeks to divide the manufacture into its detailed parts, and to complete the perfected flower in the locality where it is to be used. So the flower-manufacturer of New York in a small way imports the stem, and attaches it to the calyx; in other words he assembles the stem, calyx, petals, stamens, pistils, and corolla here, sometimes making a detail, but very generally importing all. The rubber stem is almost altogether imported in spite of a high tariff of 50 per cent. *ad valorem* when completed and colored abroad. A few stems are colored and flocked here, which allows of a reduction in the duty to 25 per cent. Still the merchants maintain almost to a man that even then we do not do well enough to warrant the fight on tariff lines.

The fact is that the whole artificial-flower industry is wrapped up in a secret well kept, and which has never strayed from Paris, although as will be explained further on, some well-concentrated attempts are now being made to divine the mystery, and place it among our domestic industries.

The rubber stem, when it is imported, comes in meter lengths, packed in bundles of one thousand, and is encased in rectangular wooden boxes with covers closely fitting and shaped like the seed-box of the horticultural dealer. The sizes range widely from Nos. 1 to 40, and rarely to 000,—the measurements being French standard gage, which numerically is opposite to our own, as well as to the English. The rubber used is of fairly good quality, although some of the importers have peculiar and profane ways of describing an occasional consignment that reaches New York. A fair price per thousand for the average sized stem is \$9.75 per thousand, and it is said that fluctuations are small and infrequent. Those stems with thorns are very neatly and tastefully made, showing the deftness of the hand of the French workman who got the spark of the art in his infantile nourishment, and the atmosphere in which he was brought up kept him in line to fall naturally in his father's footsteps. So generation after generation goes along, growing in skill and taste, making it a matter of the utmost difficulty for a foreigner to follow. Importers in the trade say that the climate is just right to precipitate the delicate shades in France, and that this is another handicap for all others.

However this all may be, the domestic manufacturer is not idle. Millot Brothers, of New York, are making an attempt to divert the manufacture of stems into domestic mills. This company have made up a good supply of various sizes from 000 to 7, but have made no effort to dispose of it as yet, preferring to get rid of the foreign goods

that they have on hand first. Mr. Millot, in speaking of his new departure, appreciated the difficulty in his way with regard to competent workmen, but believed that with a proper selection of foremen, his fears as to the result would dissolve. Certainly the making of rubber tubing is not a lost art in America. He could, however, figure up the result in the fall months, when guessing would have passed. There is not a fortune in the business at the best, \$25,000 being the estimate fixed as the maximum of importations. A large manufactory it is said, is also entering the business and is inviting custom. An imitation made of gelatine is being exploited, but the color is bright and glistening, while that of the natural flower is peculiarly dull, a shade very difficult to imitate, and believed by many impossible to any other than the Parisian. The flocking, whenever desired, is also difficult to imitate.

There is some rubber used with the muslin that forms the petals of the artificial flower, but to so small an extent as to be of little moment. Rubber cushions are used also in *goffering* or indenting the leaves.

There are perhaps one hundred importers of artificial flowers in New York city, many of them manufacturers, but outside of the locality where they congregate,—for a few blocks above Grand street,—none are known in the country.

The business to be of any great value to the rubberman here would have to be wrested in all its details from France; that is, the flower complete should be made here. That done, the making of the stems would be worth the effort necessary to build up the industry. As it is, so many complete flowers are imported that there is little room for profitable pioneer effort.

THOUGHTS FOR THE RUBBER STORE.

AN innovation noticed in New York stores is a rubber coin-mat which has the name of a popular restaurant imprinted upon it, and is given away as an advertisement. It is without points, however, in their place being ridges not close together, and druggists and others say that they do not fill the bill. It shows, however, the remarkable cheapness with which they can be produced, and probably we shall soon see something else in the rubber line devoted to advertising purposes. A good tobacco pouch, for instance, might be used.

There is a great deal of pure rubber in these articles by the way, and as a digression, we may note the variety of styles. Pure gum, red gum, fancy leather with rubber linings, round frames, small frames, box frames, embroidered with kid, with strings, in fact the variety is wonderfully large, and the price, any where from 15 cents to \$1, or even more; and yet *apparently* few are in use. In quantities they could be gotten up very cheaply,

and for tobacco men they would make an excellent advertisement.

The match-box is another good article for a give-away advertisement. These could also be gotten up cheaply, and so could the pocket inkstand, for the man who is willing to spend a little money. The latter would never be thrown away, and travelers would constantly parade them. Pitcher-mats in restaurants would almost equal elevated-railway advertising. There is a moment, as the hungry man nibbles at the bread and butter, when he is in a very receptive mood, and an advertisement on the edge of the pitcher-mat would catch him.

Even rubber bands—those of the flat sort—could be used, and these would be cheap indeed. Speaking of bands, one might wonder why some manufacturer does not put upon the market a white band for use with shirt sleeves. A rubber band is more simple than the elastic web and cheaper.

THE MECHANICAL RUBBER COMPANY.

SOME facts of interest in relation to the present status of this new important organization have appeared recently in the Cleveland newspapers. What follows is extracted from the *Plain Dealer*, of that city, under date of April 22: Mr. J. D. Connelly, manager of the Ohio Rubber Co., has just returned from New York and was seen last evening in reference to the Mechanical Rubber Co., in which Cleveland parties are largely interested. Since the formation of the concern, a few months ago, the New York papers have devoted a great deal of space to it, and declared that it was a trust among rubber plants through a system of absorption.

"Is the concern a trust?" was asked.

"The company is in no sense a trust," replied Mr. Connelly, "as many have supposed it to be. It was organized for the purchase—not the union or association—of rubber plants, and has already purchased and is now operating

rubber-factories in Massachusetts, New York, New Jersey, Pennsylvania, Ohio, and Illinois. The company is financially very strong, and there are men in the directory worth millions of dollars. The purchases that have been made were in most instances paid for part in stock of the new company and part cash, and purchases yet to be made, I understand, will be paid for part in stock and part in cash, or all in cash, as the parties selling may desire."

"What was the price paid for the Cleveland and Chicago plants?"

"Those plants belonged principally to John and Louis K. McClymonds, and I do not know that they would care to have the figures published," said Mr. Connelly. "Besides the information is of no interest to the public. It may be interesting to state that work at the Cleveland factory will be continued under the management of M. I. Blanchard and R. S. Pierce, with 500 or 600 skilled work-

men in the mechanical department and 100 or more young women in the druggist's-sundries department."

The company began business eight months ago under a preliminary organization, with a board of directors, composed principally of the presidents of national banks of New York, and was recently organized with a capital stock of \$15,000,000. The great concern with its necessary factories and thousands of workmen is directed and controlled by a former Cleveland man but now a citizen of New York.

A NEW RUBBER-SHOE FACTORY PROJECTED.

IN New York, Philadelphia, and Boston it has been gossiped for two weeks past that a new plant for the manufacture of rubber footwear was well under way. It was "backed by capitalists," was to be "owned by the jobbers," was the "project of a wealthy leather-man," was the "scheme of a rich rubber importer," was "formed by a number of men who supply ingredients for rubber compounding and who fear that the United States Rubber Co. will eventually cut them off." All this in the way of rumor, and as much more. As far as can be learned the basis of all this talk is the plan of a Boston man to start a mill. This gentleman is one who is well up in the jobbing of rubber footwear, and is none other than Mr. H. F. Jaquith, President of the Traders' National Bank of Boston. He was formerly with his father in the firm of B. F. Jaquith & Co., the well-known jobbers of rubber footwear.

Mr. Jaquith having invited those who were interested in the formation of a new rubber company to call at his bank, a representative of THE INDIA RUBBER WORLD sought some definite information there. Mr. Jaquith was not prepared to make any but general statements, as the plans are as yet but in embryo. Taking a hypothetical case, however, he was free to say that it was his conviction that there was room for one more rubber-shoe factory. If \$500,000 cash were raised,—and he thought it easily might be,—certain jobbers would readily give as much more in the way of good paper and that a \$2,000,000 business could be done. Regarding competition, he said he did not think that there would be any cutting of prices to injure the business of the new factory, as that would mean a drop in price on \$20,000,000 worth of goods, and that the "Trust" could not afford to do. A new mill could easily be in operation at the end of a year and equipped with the best of machinery at that. In case they were not able to buy crude rubber in this country they could go to Liverpool, the market of the world, and get all they wanted. The projectors being familiar with the business, there need be no such mistakes as had often attended the starting of rubber-shoe factories; in other words, he could gage results as they came along, and would not be at the mercy of a superintendent.

The place for the plant had not been definitely determined upon. It might be on the Atlantic coast, or it might not be. It would probably be where coal was cheap, labor plenty, and transportation facilities good. That the plan had attracted considerable attention Mr. Jaquith was will-

ing to admit, and that capital was already pledged, but he would give no names, or commit himself to any but the general statements above given.

* * *

TO MAKE RUBBER SHOES IN WISCONSIN.

A PROSPECTUS has been issued by the Badger Rubber Manufacturing Co., which is in process of organization at Janesville, Wis., with a proposed capital of \$200,000. It opens with this statement: "In view of the exorbitant advance in all lines of rubber footwear we propose to establish a factory for the manufacture of a full line of rubber boots and shoes to supply the retail trade of the stockholders of this company only. Said company to be composed entirely of retail dealers in boots and shoes," etc. The stock is divided into shares of \$25 each, no person to hold more than four shares. "All goods to be sold to stockholders at not less than 25 per cent. less than the present prices fixed by the rubber trust . . . The company is formed solely to protect its stockholders from the exorbitant demand of the rubber trust, and will at all times sell its goods to its stockholders at 5 per cent. above actual factory cost . . . Money advanced as first payment on stock will be refunded if sufficient capital is not subscribed."

Forty incorporators are named, including the local dealers in boots and shoes, local bankers, and other prominent citizens. The company write to the THE INDIA RUBBER WORLD: "Subscriptions for stock in our proposed rubber factory are coming to us at a rapid rate, and we feel much encouraged."

* * *

HOW TO DRY RUBBER BOOTS.

RUBBER boots which have become wet inside either from exposure or perspiration, are dangerous to wear until dried out, and this is often a difficult task; many wear cork soles which can be taken out and dried, others fill their boots with hot oats at night, and others shake hot gravel in them to dry them out, but all these plans are only partly successful. The illustration presents another plan which has the merit of being quickly accomplished, effective, and new. A lamp is set on the floor, the boot is tied to the back of a chair low enough so that the chimney extends well up into the boot leg, the lamp is lighted and turned up. The hot air goes just where it is needed and dries the boots.—*American Agriculturist*.

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STYLES IN RUBBER SHOES.

THERE is scarcely a style of leather shoe now made that does not have a rubber to conform to it. The square toe and Piccadilly, the common sense and spring heel, all require rubbers that will match them. It is of importance that a retailer, in fitting a rubber on a customer, sell one that conforms to the

style of the shoe, for it too frequently happens that a rubber shoe is pronounced inferior and unserviceable because it is worn regardless of the shape of the leather shoe over which it is drawn, when the fault is entirely with the wearer. A person buys a rubber too narrow for the sole of the leather shoe, and in the constant chafing by wear, the sharp edge of the sole cuts through the pliable rubber, and the latter is rendered worthless before it is half worn out. Again, a rubber should always be a full size longer than the leather shoe, and then reasonable service is attained.—*Shoe and Leather Reporter*.

ARE RUBBERS GOING OUT?

GOLOSHES are evasive things. No wonder there is a "rubber famine." Overshoes have had a long and trying winter, and few are the gums left whole on any door mat, even in Philadelphia. But there is little likelihood of present emancipation from these modern necessities of life, as the slosh of our streets grows sloshier. And yet, of late, there are numbers of people who never put on rubbers under any provocation, but defy the worst the streets can do with various kinds of waterproof shoes and boots. Like their pre-Goodyearian ancestors on these ice-bound and snowy shores, these russet-shod modern sons and daughters of the faith go stoutly defended from snow water and chilblains in the strength of their own convictions, and in well-greased calfskin. Thus the old ways return, and delicate ladies and sturdy youths plough, gay and goloshless, through the Siberian crosswalks of the streets of Boston.—*Boston Transcript*.

THE LOT OF THE SHOE-DRUMMER.

THE boot-and-shoe traveler in the country districts has a hard row to hoe. Up at 6 o'clock in the morning, behind a double team, he goes miles to reach a line of stores never selling at the utmost more than four cases to any one. His expenses for a team generally make a neat little sum of \$8 a day, but he gets the most ordinary fare. A beef-steak that will match the rubber shoe in elasticity is a delicious morsel to him. He eats indescribable bread, has pie at every corner of the table for breakfast, drinks chicory or something worse, and pays urgent court to King Dyspepsia while he brings in the ducats to his employer who talks about expenses in a way that makes the young man wish himself back to the sodden biscuit. These men are, however, building up a trade that cannot be taken away from them, for no one is more welcome in small places than the city drummer, who knows all the gossip of the section of the country through which he is passing, and has also the latest news about the city trade. The newspaper is not "in it" with him.

BOOT AND SHOE FINDINGS.

WHILE the purchase of new rubbers in Washington at the Inauguration was unprecedented, it is said that the collection of old rubbers since has been even more remarkable. The stores in Washington at that time had in stock a most wonderful collection of antique styles which no one really would have bought if it were not a case of dire necessity, and they were so old they fell to pieces, or so clumsy that they were thrown into the street upon leaving Washington, and the darkey scavenger has had a sort of picnic ever since.

—Hardware stores on Whitehall street, in New York city, have found it to their advantage to keep rubber shoes during the past winter. The thoroughfare is on the direct route to the ferries, and the pedestrian peered into every nook for a place to get overshoes. A practice in that neighborhood is for the office man to send his shoe down by an errand boy, and have it fitted.

—Boot- and shoe-dealers in the country are possessed of the

idea to a large extent that the manufacturers are holding back their goods so as to make a leverage for higher prices. They reason that the "list" for sandals has not been reduced to the extent that other sorts have been, and that the scarcity is now in that class of goods. Of course an outsider can see that all this is illogical, but that opinion is held all the same.

—Some trouble with the new prices is anticipated in the boot business. The prices of boots have been advanced rather heavily, and it is thought, even among rubber-men who are interested pecuniarily in the outcome, that there will be a sharp return to the strong, thick leather boot. At the moment, the rubber-men seem reconciled to this outcome, as it has been with the utmost difficulty that a portion of the demand has been supplied. To increase the output in this respect requires large outlays,—lasts, workmen, etc., being expensive,—and as the demand is a fluctuating one, it is difficult to meet its variations promptly. In shoes no such contingency is expected as the competition of leather.

—The Ensign patent on boot-tree clips expired May 2.

—A white-soled yachting-shoe is going to be quite the thing this season. A good white zinc sole is a hard thing to get, but by semi-curing the rubber instead of thoroughly vulcanizing it a first-class result is attained. Strange as it may seem, the wear is better than if the curing were complete. The plain sole is the popular one, for the reason that the corrugations leave tracks on a wet deck that are not attractive.

—The *Boston Transcript* is worrying over the fact that more people are wearing russet shoes and thus doing away with the necessity of wearing rubbers to protect their feet from getting wet. If their reporter consulted the leather-shoe men he would discover that the russet shoe is really less waterproof than the black shoe, and the idea that it is extra protection in bad weather is a fallacy.

—There are enough rubber boots and shoes manufactured in this country to nearly give a pair a year to every man, woman, and child, but the manufacturers persist doggedly in holding them for cash.—*Boston Globe*.

—The Boston Rubber Co. are about putting an addition on their Franklin mill, as they have been so rushed with orders for their "Bell Brand" goods that they feel they must have greater manufacturing capacity.

—"Do you size on this brand?" is the pertinent question in a recent advertisement of the India Rubber Glove Co. If it is asked the average stylish wearer of fine rubber shoes in the city, the chances are that the answer will be in the affirmative.

—A salesman of rubber boots and shoes from a large New England factory was congratulating a member of a Canadian firm recently on the fine winter that they had had, when to his surprise he was told that the winter there had been nothing unusual. As a matter of fact they always have plenty of snow and when the snow goes, plenty of slush, so the wonderful winter here has only been an every year occurrence on the other side of the line.

—The National India Rubber Co. claim the honor of being the first manufacturers to make a tree for a close-fitting ankle-boot.

—Jobbers in Baltimore say that they are obtaining about the usual number of contracts for boots and shoes, the advance in prices making little difference. A member of the firm of Boyd Jones & Co., in talking with an INDIA RUBBER WORLD man, spoke very encouragingly of the outlook for the season.

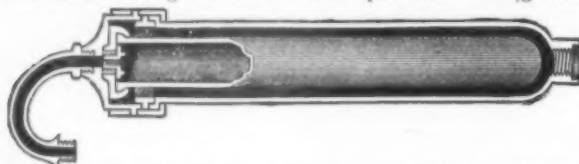
A TRUCKMAN in New York says that in two weeks last month he carted 300,000 pounds of rubber for three manufacturers. He says that was a large amount of rubber for the time stated.

NEW GOODS AND SPECIALTIES.

THE manufacture of emery wheels has become one of the great industries of the country; indeed, at times the demand for wheels has exceeded the capacity of the producers. Certain makes of these wheels have had a first-class reputation, as the manufacturers were willing to take proper care in the preparation of the material and in the completion of the wheel. The wheels are run at a high speed and are apt to burst. And as there is also likely to be a great waste in running, the problem of perfecting them has been the subject of much thought. Both of these troubles are said to have been overcome by the production of what is known as the Acme Safety Emery Wheel. This wheel is built upon a metal center and the metal dovetailed into flanges, which prevents the wheel from flying if broken. The iron center also strengthens the wheel, precluding the liability to break from a centrifugal strain, and while the wheel is built into a rim, the amount of solid material consumed is far less than is the waste in a solid emery wheel. The center or hub of the Acme is about the diameter of an ordinary emery wheel when worn out, so that there is a special saving of material in these goods. The material, by the way, is perfectly cemented to the flanges and the wheels balanced and constructed on the most scientific principles. The metal piece for the center can be made over or refilled whenever necessary. Manufactured by the Acme Safety Emery Wheel Co., Detroit, Mich.

THE BOSTON WATER PURIFIER NO. 1.

A NEW water filter that has enough rubber about it to warrant its mention in this department is shown in the accompanying engraving. The cut represents a sectional view of the filter and tube in position. The outer tube is made of metal and the inner tube, of a combination of clays, and it is filled with animal charcoal. The water entering the outer tube cannot reach the outlet, which is a goose-neck at the top, without forcing itself



into the inner tube, as there are two large red rubber gaskets at the top, one surrounding the inner tube at a point quite near the top and the other fitting as a cup over the top of the inner tube. A heavy piece of rubber is used for these gaskets and without them the filter would be an impossibility. In the process of filtration all matter is arrested on the outer surface of the clay tube and is readily removed with a hard brush. Manufactured by the Boston Filter Co., No. 39 Boylston street, Boston.

AUDITORY APPARATUS FOR TELEPHONES.

AN auditory attachment that may be attached to the ordinary Bell telephone receiver is being adopted quite generally. The attachment consists of a cover for the ear with elastic packing which is provided with a central aperture communicating through a flexible tube with two ear-pieces. These are cup-shaped and of rubber and filled with a sound-muffling substance to prevent the interference of external noises. The cups are connected with the tubes by a screw-thread and are provided with a flaring opening so that they may be adjusted to suit the convenience of the individual using the instrument. Manufactured by George F. V. Benjamin, Attica, N. Y.

THE BOSTON VENTILATING TENNIS.

THIS shoe has been sufficiently long on the market to prove that its ventilating quality is effective and valuable. The ventilation is secured by means of a perforated leather insole over



a felt undersole, which produces a combination that gives great ease to the tread and comfort to the foot. The pressure of the leather sole upon the felt acts as an exhaust for the small amount of air that is contained in the pores of the felt, driving it out and thus ventilating the shoe and keeping the foot cool. As in all shoes with rubber soles there is a ten-



dency toward heating, this point is particularly to be noted. The Ventilating Tennis Shoe is made up in both Oxfords and Balmorals in men's, boys', women's, youths', misses', and children's sizes, in two colors, black and striped, only first-quality goods being made. Manufactured by the Boston Rubber Shoe Co.

THE PARASOL LAWN-SPRINKLER.

How to water a large space with a little water, evenly distributed, is what the sprinkler-manufacturers are striving to find out. No mechanism has accomplished this better than the Parasol Sprinkler, shown in the engraving. It is so made that a slight pressure of water sets the bent arms revolving, and as the outlet is through perforations at the extreme ends the water is thrown in a fine spray evenly covering a space from twenty to sixty feet in diameter. The bearings are lined with the best Babbitt metal, and will not leak, wear, or get out of order. As the Babbitt is an anti-friction metal the sprinkler runs easily, only a very light water pressure being required to set it whirling. Warranted to last for years, running night and day. Manufactured by the Boston Woven Hose and Rubber Co.



PARASOL LAWN-SPRINKLER.

MYERS COMBINATION SPRAY NOZZLE.

F. E. MYERS & BROTHERS, Ashland, Ohio, are introducing an article shown in the accompanying illustration. They refer to the fact that the success of spraying and of a spraying apparatus depends largely on the nozzle used. They make the claim that their nozzle will throw a spray as fine as mist, not allowing any drops to escape, thus diffusing the arsenites properly and in a way that is not injurious to the foliage. This nozzle will also throw a solid stream. They state that the nozzle is not



MYERS COMBINATION SPRAY NOZZLE.

an experiment, having been fully tested during the past season.

A NEW TREE INSULATOR.

THE problem of attaching wires to trees so that they may in no way come in contact with the branches, has been greatly simplified by a new tree insulator, a cut of which is herewith shown. The insulator proper is on a shaft which works in a ball-and-socket joint, the cup of which is made fast to the tree. The line stays in its normal position, no matter how the tree may be swayed by the wind, and is thus effectually prevented from coming in contact with any part of the tree and grounding the current. This insulator is manufactured by C. M. Carhart & Co., No. 18



TREE INSULATOR.

Custom House street, Providence, R. I.

"ANOTHER NEW PACKING."

THE steam-user and engineer call for a packing that is soft, yet flexible, elastic, and durable, and which, by reason of its elasticity, will keep tight without friction. The result of a series of experiments to attain these features has produced what is known as the Sensible Automatic Packing. The fabric in this is flax, for the reason that it holds the moisture or condensation better, it is claimed, than any other, and acts in part as a lubricator. For this reason also it is not as liable to burn or char, and does not become rigid under the action of either heat or water. This packing is made elliptical and is called automatic, because, while it decreases in size one way, it expands in the other under the action of heat; in other words, it does its work automatically. The core is made of red or gray Pará

rubber, the lubricant being Japanese wax, which is not affected by steam, water, ammonia, alkalies, or acids. Manufactured by the Sensible Automatic Packing Co., Chicago, Ill.

"BLACK BEAUTY" CURRYCOMB.

A NEW invention in the line of currycombs that will at once recommend itself, not only to horsemen but to the horse, is one made entirely of rubber. The teeth of this comb are short flexible points of a good quality of gum, molded upon a thin back which is elastic enough to conform to every curve of the



body. A rubber strip across the back of the comb secures it to the hand while in use. This cleans the skin perfectly without the least irritation, and grooms who have used it are delighted with the results attained by it. It is a perfect "shedder," nor can it injure the tenderest skin in any way. The accompanying illustration will show its merits without further description. Manufactured by C. J. Bailey & Co., No. 22 Boylston street, Boston.

HUDSON'S GARDEN-HOSE MENDER.

THE Hudson Mender has been on the market for five years, and although the business was started in a very small way, the Hudson to-day has become the leading hose-mender in the market, especially so in New England, where it is claimed that more "Hudsons" are sold than all others combined. The reason for this popularity is that the device is especially adapted for family use, and does not require a skilled mechanic to successfully use it, but, as the manufacturers claim, "it is so simple, a child can use it." The device is put up in a nicely-labeled box 7 inches long by 2 inches wide and consists of 1 pair of pliers, 6 tubes,

and 20 bands. The parts are made of the best malleable iron and refined brass, being very strong and durable. The method of mending a break is to cut out the burst portion of the hose, insert one-half of the tube in the hose, slip on one of the brass rings directly over the groove in the tube, pass the hook ends of the band through the hole in the end of the plier, press the handles firmly together, twist the pliers while under strain one-half round,—thus locking the ends of the band firmly together,—take off the plier, pound down the ends of the band with the heavy part of the pliers, proceed with the other end of the hose in the same way. The break will then be mended so effectually that it will never leak or come apart where mended. It is claimed that the Hudson is the only mender on the market with which couplings can be fastened on when they come loose. The Hudson not being a screw mender, the thin rubber lining is not torn from the hose when the tube is inserted. Hose mended with the Hudson will stand a pressure of 200 pounds. It is made in three sizes for 1-inch, $\frac{3}{4}$ -inch and $\frac{1}{2}$ -inch hose. Extra parts may be obtained at a slight expense. Manufactured by C. E. Hudson & Co., Leominster, Mass.

TWO NEW STYLES IN SHOES.

Two new shoes that have just been brought out and that have decided merit are shown in the accompanying illustrations.



HARVARD ALASKA.

comes up high as in a storm rubber, but the quarter is cut low so that it is self-acting and may be kicked on or off without the use of the hands. The toe is either regular or London.



HARVARD.

adjusting the rubbers. The same shoe made with a plain rubber vamp and a fine net lining is known as the "Harvard," and has practically the same advantages in respect to convenience that the Alaska has. These goods are made only in first quality and are of the well known Bell brand goods. Manufactured by the Boston Rubber Co.

HANDSOME MACKINTOSH HATS.

THE thought that comes to one when speaking of anything in the line of waterproof headgear is that such apparel must be similar to the old-fashioned clumsy rubber hats. That it is



A MACKINTOSH HAT.

possible to make a stylish hat or bonnet of mackintosh material, one that cannot be distinguished from the most artistic handiwork of fashionable milliners, is what many would doubt. Yet to-day the best stores are carrying walking hats, turbans and bonnets, made by regular milliners to be sure, and

in shape and trimmings up to the latest fashion, with the material mackintoshed. As a rule when people talk this hat it has little effect; a picture of it does not sell it; but when the ladies have it shown to them they are at once converted to its merits. Any kind or color of cloth can be used in its make-up, and the mackintosh hat has without doubt come to stay. Manufactured by the Metropolitan Rubber Co., Summer street, Boston.

MINOR MENTION.

THE Boston Belting Co. are having a large demand for their "Red" packing. This packing has wire instead of cloth insertion, with the result that it will not blow out at the joints. Particularly is it desirable for miners' use, they experiencing more difficulty for this reason than others, and the company are in receipt of many letters from mining engineers acknowledging this quality. It comes in sheets thirty-six inches wide.

—"Grapa" is the name a Boston man styles his dressing for rubber belts. A dressing for rubber is not often advertised. It certainly is very different from that used for leather.

—The Boston Belting Co. have issued a leaflet describing their rubber door- and cuspadore-mats and stair-treads, with complete price lists. The company have some new designs lately brought out, and the assortment consists of a variety of diamond cell and perforated styles. A new pattern of street-car treads and an ornamental door-mat are among the more recent additions to the list of this branch of manufacture of the company.

DUTIES ON RUBBER GOODS.

TESTIMONY was lately given before the Board of General Appraisers, in a case involving the duties on waterproof goods, to prove that worsted fabrics could be rendered water-repellent by passing them through solutions of castile soap and alum heated to a high temperature.

The J. B. Lippincott Co., publishers, of Philadelphia, recently imported some copying-book brushes, having in the place of bristles wedge-shaped pieces of India-rubber about two inches long. It was claimed that they should be dutiable as manufactures of India-rubber. As it is now common to use India-rubber teeth in hair- and tooth-brushes, the General Appraisers decided that the dampeners were brushes and overruled the protest.

H. Wolff & Co., of New York, claimed that an importation of some dress-protectors should be dutiable at 30 per cent. *ad valorem*. These dress-protectors were twelve yards long and resembled tucked flouncings with scalloped edges and were composed of India rubber and cotton, the former being of the greater value. The claim was allowed.

Some carriage-aprons made from heavy woolen cloth coated on the back with India-rubber and lined with woolen cloth of lighter weight were imported recently by S. Ascher, of New York, and claimed to be dutiable at 15 cents per square yard and 30 per cent. *ad valorem*. It was held that such goods could not be accurately measured and were liable to 44 cents per pound and 50 per cent. *ad valorem*.

THE dining-cars recently built in Birmingham, England, for the Peninsular and Oriental service, to run in connection with the Indian mail-train from Calais to Brindisi, are among the most important of recent types of railway construction in Europe. Every possible precaution has been taken to insure the comfort of passengers. The windows open at the top and slide in brass grooves, the frames being edged with velvet to prevent any rattle, and strips of India-rubber are placed over all joints to exclude draughts.

RUBBER SALESMEN ON AND OFF THE ROAD.

WILLIAM BAUM, who is one of the old regulars with the New Jersey Car Spring and Rubber Co. (Jersey City), first began his rubber career with one of the earlier mills in Connecticut about twenty years ago.

At this time the manufacture of mats for household use had not been commenced, and Mr. Baum was selected to try the consumers' trade to see if rubber mats would "take." The new article for doorstep use found favor at once, and in no time Mr. Baum was handling a full line of hose and other goods in the mechanical line on a commission. While working the consumers' trade through New York State, Mr. Baum learned that there was to be an order placed for fire-hose in the town of Birmingham. Though it was several years ago, the fire-hose men were on time, and when Mr. Baum arrived he found seven

of any size where Mr. Baum and his goods are not known favorably.

* * *

SHORT TRIPS.

CHARLES R. LEONARD has been doing well with the export trade of the Hodgman Rubber Co. (New York). Mr. Leonard was for many years manager of the Pará Rubber Manufacturing Co., who were located on East Fourteenth street. While buyer for that company he made many friends among the visiting travelers in the rubber line who paid the house a visit, all of whom now miss him, as he was a good buyer as he is a good seller.

—F. W. Stephenson is at home in Chicago from his long tour to the Pacific slope. Mr. Stephenson is no stranger over this territory, and he is an expert in all foreign-made mackintoshes, having been associated with several of the largest English manufacturers. Mr. Stephenson is now, and has been for some time, handling the well-known line of J. Mandelburg & Co., Limited, of Manchester, England, who also have a factory now in New York city. This was Mr. Stephenson's maiden trip to the coast with this line, and his success was very satisfactory to his house and to himself. Apropos of the coast trade, a very large number of rubber salesmen have wandered out there this season, and Messrs. Preiss, Jenkins, Rosenthal, Gillette, Plant, Hamilton, and Stephenson are now at home. All report a very fair trade.

—Frank D. Green was in Trenton recently, hurrying up shipments of hose.

—George F. Proctor, of the Boston Rubber Co., is on a trip through New York State, a territory formerly covered by Mr. Corner, the New York representative of the same company.

—Edward F. Tolson is on a trip through Pennsylvania in the interest of the Patapsco Rubber Co. This is a new territory for Mr. Tolson.

—William Gaylord, of the Stoughton Rubber Co., met a lot of old friends recently at the Park Avenue Hotel, New York, it being a crowd of eight rubber-men.

—Harry Preiss, of the Chesapeake Rubber Co., is fixing up a handsome line of samples for his western trip.

—William H. Jones, of Boyd, Jones & Co. (Baltimore), shook hands with some old friends in Chicago at the opening of the World's Fair.

—The Stephen Ballard Rubber Co. (New York), will have a very handsome line of clothing this season, and their Mr. Chandler is busy fixing up their travelers with swatches and samples. As this house covers an enormous territory and has a great many salesmen, they will no doubt move a great many goods.

—Joseph King, formerly with the Hodgman Rubber Co.'s Boston store, is now at the headquarters of that concern in New York.

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FROM A DRUMMER'S NOTE-BOOK.

SALESMEN selling ladies' waterprofs, as well as the manufacturers of ladies' mackintoshes, are not a little worried over the advent of the much-talked-of crinoline. If crinoline is to be popular, it will simply require new patterns and a large increase in material for all ladies' wraps. As it is now, the many changes in ladies' waterprofs as to cut and general style are a great handicap to most of the manufacturers, especially those



WILLIAM BAUM.

competitors, all after a thousand feet of hose. Mr. Baum secured the order, however, and then began traveling through part of New England, where he remained for four years. Finding his territory too small, and wishing to sell a more complete line, he wrote the New Jersey Car Spring and Rubber Co., asking for the territory of New England for their line of goods. He secured the position and has been ever since associated with this company. He has for his territory the whole of New England, and as he has been at it for a long time, it is needless to say, he is one of the best-known travelers in that section. During eleven years his company have made large additions in the way of novelties to their already large line of mechanical goods, and Mr. Baum has been able to increase his sales yearly. Mr. Baum says: "The harness I have on seems to fit me, and I shall probably die with it on." There is no New England town

who have been used to making only men's goods. Verily, the ladies' line of mackintoshes is now, in every sense of the word, a cloak business.

—The new samples of mackintoshes shown by the various manufacturers, who are giving especial attention to this branch of the rubber-clothing trade, are much handsomer in patterns and much better than ever before; in fact, many of the garments show workmanship and perfection in finish that would do credit to a first-class merchant-tailor.

—The popular cape coat is holding its own, but the Box and the sleeveless Inverness are novelties that are being taken hold of by the buyers in large quantities.

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—It costs more to truck a ton of rubber across New York city than to bring it from Pará. Is it not in order to use what our English friends call trams for freight purposes? A Boston street-railway is now running a line of baggage- and freight-cars to its suburban points, an example that will probably be followed elsewhere.

—The gathering of rubber in Brazil is affected by the labor question at the present moment more than is generally supposed. In the equatorial regions it is always difficult to obtain labor, but now it is further complicated by the financial position of Brazil. European laborers by thousands have left the country owing to an unprecedented advance in the price of living, and the coffee crop is to some extent jeopardized. The cultivation of corn in the interior has been abandoned. This naturally has prevented laborers from Ceará making their annual trip to the Amazon. Brazil is now after one million immigrants, and will be glad to take even the heathen Chinese.

—At a recent meeting of the directors of the Easthampton (Mass.) Rubber Thread Co., it was voted to make a present of \$1000 to Manager E. T. Sawyer, for excellent services in connection with the building and equipping of the new mill.

—A vulcanizer exploded at the Tuttle Rubber Works, Holyoke, Mass., on April 21, and shattered every window on the west side of the building, besides demolishing the foreman's office. None of the employés were hurt, and none of the machinery, except the vulcanizer, was injured.

—A. H. Hover & Co., rubber-stamp manufacturers in Cincinnati, were damaged by fire to the extent of \$5000 on April 17, but were fully protected by insurance. Mr. Hover was taking a nap in his private office when the fire occurred and narrowly escaped with his life.

—The Pierce Rubber Co., at Danversport, Mass., it is stated, will soon add a new building to their present quarters. An increase in their business necessitates it.

—George P. Thomas, Jr., at Baltimore and Charles streets, Baltimore, claims that he has the handsomest rubber store in the country. It is certain that a fine square store, well lighted, handsomely decorated, with plenty of counter cases and roomy show-windows, go to make good a large part of Mr. Thomas's assertion.

—The Hartford Rubber Co. have shipped this season two orders for about 500 pounds each of pure rubber rings to the Pacific coast to be used in the fruit business. The company have always held a good trade in this respect in that section.

—Dealers say that the rubber lacings manufactured by the Eagle Specialty Co. (Brockton, Mass.) are meeting with much favor. For a high balmoral a 30-inch lace is used. It is laced as with an ordinary string, without much stretching and the ends tied together with a hard knot. The shoe can be taken off by simply unhooking the lace from two or more hooks without untying. An Oxford or tennis shoe requires a 15-inch lace. A 48-inch lace is used for ladies' front or side lace. They are made in black or russet, round or flat, with a wire tip on the latter variety.

—The New York Belting and Packing Co. make about 1,000,000 pounds of jar-rings per annum, or eight tons per week. One firm takes from them a daily average of 1500 pounds. The machinery to turn out this enormous quantity is heavy, expensive, and especially designed for the purpose. The rule of the factory is to make a ring that weighs only nineteen ounces to the gross, a guarantee that some deleterious substances are not allowed to enter into the composition. The company were the original manufacturers of the Mason jar-ring.

—Beck Brothers, Springfield, Mass., have been doing an excellent business this spring. There has been rain enough in that section to cause the inhabitants to dream of an ark, and they have not forgotten to buy mackintoshes, shoes, and everything else needed in pluvial days. The firm has fitted up one corner of their store into a mackintosh department, which is carpeted, and have in it a case with sliding glass doors thus keeping the garments free from dust. This case is fitted with suspended hooks, allowing of great economy in space. The show windows of the store are dressed as tastefully as ever.

—Eugene Herbert, of the Atlas Rubber Co. (New York), left last week for a trip through New England and Canada.

—Those were busy days at the Hartford Rubber Co. when they were completing an order for 9600 rubber tires for the invalid and perambulating chairs at the World's Fair. The order was for 4800 small and 4800 large tires, principally of the cushion variety. Nights were utilized in getting this order off, and all hands—officers and employés—felt very much relieved when the last tire was packed and on board the cars.

—Mr. Day, of the Day Rubber Co. (St. Louis), was in New York last week. He reported an excellent business in clothing, and a correspondingly poor one in garden-hose. Collections were good, and the outlook favored a large trade this season.

—A good, economical engine is the *sine qua non* of successful manufacture. Cheap, reliable power means profit on the output. Manufacturers and mill-builders may do well to look into the merits of the improved Fish-kill-Corliss engine before concluding contracts for any other.

—The mammoth flag of the Gutta-Percha and Rubber Manufacturing Co. on the roof of the Pará building (New York) has been in use two years, is whole, and apparently as clean and good as it was when first put up.

—The Gutta-Percha and Rubber Manufacturing Co. have done a much larger business in fire-hose this season than ever before. The company are now two months behind on its orders for billiard cushions.

—The sale of black topped tennis-shoes has been so great this season that the sateen cloth used upon them has been exhausted and some manufacturers have been compelled to refuse orders for them owing to their inability to secure the cloth at present.

—Loewenthal & Morganstern (New York) have moved to Room 103 Stewart building. The Union Rubber Co. have their home in the same room.

—Not a case of shoes in store for sale is the peculiar feature of the Reade-street stores.

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—The manufacturers of the Hudson garden-hose mender, C. E. Hudson & Co., Leominster, Mass., state that a hose mending device is being put on the market by Charles L. Halstead, of La Crosse, Wis., and is a direct infringement of patents owned by them; that a suit will at once be brought against him for damages, and that all parties handling the goods will be held strictly to account for all damage done. If any one is in position to furnish the names of any parties who are selling these goods, the manufacturers will pay liberally for the same, and will hold such information in strict confidence.

—It costs more to truck a ton of rubber across New York city than to bring it from Pará. Is it not in order to use what our English friends call trams for freight purposes? A Boston street-railway is now running a line of baggage- and freight-cars to its suburban points, an example that will probably be followed elsewhere.

—The gathering of rubber in Brazil is affected by the labor question at the present moment more than is generally supposed. In the equatorial regions it is always difficult to obtain labor, but now it is further complicated by the financial position of Brazil. European laborers by thousands have left the country owing to an unprecedented advance in the price of living, and the coffee crop is to some extent jeopardized. The cultivation of corn in the interior has been abandoned. This naturally has prevented laborers from Ceará making their annual trip to the Amazon. Brazil is now after one million immigrants, and will be glad to take even the heathen Chinese.

—At a recent meeting of the directors of the Easthampton (Mass.) Rubber Thread Co., it was voted to make a present of \$1000 to Manager E. T. Sawyer, for excellent services in connection with the building and equipping of the new mill.

—A vulcanizer exploded at the Tuttle Rubber Works, Holyoke, Mass., on April 21, and shattered every window on the west side of the building, besides demolishing the foreman's office. None of the employes were hurt, and none of the machinery, except the vulcanizer, was injured.

—A. H. Hover & Co., rubber-stamp manufacturers in Cincinnati, were damaged by fire to the extent of \$5000 on April 17, but were fully protected by insurance. Mr. Hover was taking a nap in his private office when the fire occurred and narrowly escaped with his life.

—The Pierce Rubber Co., at Danversport, Mass., it is stated, will soon add a new building to their present quarters. An increase in their business necessitates it.

—George P. Thomas, Jr., at Baltimore and Charles streets, Baltimore, claims that he has the handsomest rubber store in the country. It is certain that a fine square store, well lighted, handsomely decorated, with plenty of counter cases and roomy show-windows, go to make good a large part of Mr. Thomas's assertion.

—The Hartford Rubber Co. have shipped this season two orders for about 500 pounds each of pure rubber rings to the Pacific coast to be used in the fruit business. The company have always held a good trade in this respect in that section.

—Dealers say that the rubber lacings manufactured by the Eagle Specialty Co. (Brockton, Mass.) are meeting with much favor. For a high balmoral a 30-inch lace is used. It is laced as with an ordinary string, without much stretching and the ends tied together with a hard knot. The shoe can be taken off by simply unhooking the lace from two or more hooks without untying. An Oxford or tennis shoe requires a 15-inch lace. A 48-inch lace is used for ladies' front or side lace. They are made in black or russet, round or flat, with a wire tip on the latter variety.

—The New York Belting and Packing Co. make about 1,000,000 pounds of jar-rings per annum, or eight tons per week. One firm takes from them a daily average of 1500 pounds. The machinery to turn out this enormous quantity is heavy, expensive, and especially designed for the purpose. The rule of the factory is to make a ring that weighs only nineteen ounces to the gross, a guarantee that some deleterious substances are not allowed to enter into the composition. The company were the original manufacturers of the Mason jar-ring.

—Beck Brothers, Springfield, Mass., have been doing an excellent business this spring. There has been rain enough in that section to cause the inhabitants to dream of an ark, and they have not forgotten to buy mackintoshes, shoes, and everything else needed in pluvial days. The firm has fitted up one corner of their store into a mackintosh department, which is carpeted, and have in it a case with sliding glass doors thus keeping the garments free from dust. This case is fitted with suspended hooks, allowing of great economy in space. The show windows of the store are dressed as tastefully as ever.

—Eugene Herbert, of the Atlas Rubber Co. (New York), left last week for a trip through New England and Canada.

—Those were busy days at the Hartford Rubber Co. when they were completing an order for 9600 rubber tires for the invalid and perambulating chairs at the World's Fair. The order was for 4800 small and 4800 large tires, principally of the cushion variety. Nights were utilized in getting this order off, and all hands—officers and employes—felt very much relieved when the last tire was packed and on board the cars.

—Mr. Day, of the Day Rubber Co. (St. Louis), was in New York last week. He reported an excellent business in clothing, and a correspondingly poor one in garden-hose. Collections were good, and the outlook favored a large trade this season.

—A good, economical engine is the *sine qua non* of successful manufacture. Cheap, reliable power means profit on the output. Manufacturers and mill-builders may do well to look into the merits of the improved Fishkill-Corliss engine before concluding contracts for any other.

—The mammoth flag of the Gutta-Percha and Rubber Manufacturing Co. on the roof of the Pará building (New York) has been in use two years, is whole, and apparently as clean and good as it was when first put up.

—The Gutta-Percha and Rubber Manufacturing Co. have done a much larger business in fire-hose this season than ever before. The company are now two months behind on its orders for billiard cushions.

—The sale of black topped tennis-shoes has been so great this season that the sateen cloth used upon them has been exhausted and some manufacturers have been compelled to refuse orders for them owing to their inability to secure the cloth at present.

—Loewenthal & Morganstern (New York) have moved to Room 103 Stewart building. The Union Rubber Co. have their home in the same room.

—Not a case of shoes in store for sale is the peculiar feature of the Reade-street stores.

—The rainfall within the past month has been unprecedented in late years. In one day in New York 3.6 inches fell in one day, more than the average for the month of May for four years.

—The sub-companies of the United States Rubber Co. have been removed to Nos. 88-90 Reade street, New York. The two exceptions are the American and the Woonsocket. The former will remain in its old location indefinitely, and the Woonsocket will not be disturbed for a year. The new store of the United States has not been fitted up and the din of the carpenter and his tools is apparently the most interesting feature there to the observer who does not come to buy goods.

—The new circular cloak racks that so many of the rubber stores are adopting are designed and patented by Mr. Wolff, of the New York Imperial Cloak Rack Co.

—C. J. Bailey, of Boston, invites friends to visit him at the World's Fair in Chicago in the Manufacturers' Building, Section 9, Block 13,—where he will have a fine exhibit.

—The Home Rubber Co. (Trenton) had a troublesome accident at their mill recently. The floor of the storehouse for crude material broke down, precipitating tons of rubber and other materials in a mass beneath. It took several days to straighten matters out.

—Edward W. Holt, of the United States Rubber Works (New York), has designed a new hose wiring machine which, run by one boy, will wire 2000 feet of hose a day. It is said to be very simple, to save wire, and do the work better than any of the machines ordinarily used.

—E. Burt Phillips, Treasurer of the American Steam Gage Co. (Boston), built the first pump ever sold by the Blake pump works, effectively helping to launch what soon proved to be a great and lucrative business.

—C. A. Hayward's rubber store in Pawtucket, R. I., doubled its business in 1892 over the previous year, and to-day is doing a rushing business, especially in mackintoshes and footwear, all of which is very satisfactory to Manager Goward.

—The Derby Comb Co. (Birmingham, Conn.) have increased their capital stock from \$5000 to \$20,000, in shares of \$25 each, and the number of shares from 200 to 800. Of the increase, \$15,000 has been paid in in cash.

—W. A. Walker, United States representative for J. M. Mandelburg & Co., of Manchester, England, is having an excellent spring trade on the handsome specialties in the higher-priced mackintoshes made by the famous English proofers. Some of Mr. Walker's samples are entirely new, and they are beautifully made and finished.

—A neat pamphlet, published by The Standard Paint Co. (No. 2 Liberty street, New York), is devoted to a description of their celebrated "P. & B." electrical compounds, for the use of electricians, and telephone, telegraph, electric-light, and electric railway companies. The pamphlet contains also a number of letters in fac-simile and otherwise from important corporations which have given these compounds a satisfactory trial.

—A pamphlet bearing the title "Dry Steam the Foundation of Economy," has come to us from the Goubert Manufacturing Co., No. 32 Cortlandt street, New York. Its purpose is to emphasize the necessity of employing dry steam in order to obtain the maximum of economy, efficiency and safety; to give an exposition of the various methods of obtaining it; and to maintain the superiority of the Stratton System of mechanical Separation, manufactured by the Goubert Co., over all others.

—The Elastic Tip Co. (Boston) have issued a bicycle catalogue for 1893, devoted to a description of the bicycle-tires, bicycle-handles, pedal-rubbers, bicycle-horns, and other specialties fitted for bicycle use, manufactured by this company.

—The Boston Woven Hose and Rubber Co. have ordered a large compound engine from Hewes & Phillips, Newark, N. J.

—The sale of garden-hose in 1892, at a conservative estimate, amounted to 20,000,000 feet.

—The Massachusetts Chemical Co. are marketing a new gum called "insullac" which is used by the insulated-wire men and possibly will be of interest to manufacturers of mechanical goods.

—In spite of the fact that the problem of making a good pneumatic tire is one of the hardest that the rubber-men have ever had to solve, over 100,000 were marketed last year, and it is probable that three times as many will be sold this year.

—The Millard Brothers' Manufacturing Co. (Providence, R. I.) have put up a neat plant on Cranston avenue and are turning out metal specialties. They have power from a Thomson-Houston Dynamo. They expect soon to put on the market some atomizers of a new design.

—A southern rubber man writes a very pleasant letter regarding the leading feature in the department of "Rubber Salesman On and Off the Road" in the March INDIA RUBBER WORLD, and says to Mr. Henry Knowles: "When you come this way again I will get the editor of THE INDIA RUBBER WORLD in and have him acknowledge that he did not say half enough good about the veteran. I think the 'Johnnie Reb' will, as in the days of yore, be willing to set up the tobacco if the 'Yank' will furnish the coffee."

—The Dubuque (Iowa) Rubber and Belting Co., established in 1883, send out to the trade a 78-page illustrated price-list of mechanical rubber goods, which is as handsome a publication of its kind as has appeared during the season. A glance through it indicates that the rubber trade in Iowa must have a wide scope, and it is of interest to note that the claim is made prominent that highest grades are kept in stock. The same company have a department devoted to ladies' and gentlemen's mackintoshes and rubber boots and shoes. They are manufacturers also of rubber stamps.

—The Standard Rubber Corporation (Brockton, Mass.) have been unusually busy of late, and in order to arrange for a shut-down of ten days or two weeks at the end of this month, so as to build a brick smoke-stack, they have found it necessary to run several of their departments a good deal overtime. They report a big trade from the West and South.

—The Woonsocket Rubber Co. have established an agency in Portland, Oregon, where they will be represented by F. Ephraim, at No. 42 First street. Mr. Ephraim is also in business at No. 414 Market street, San Francisco.

—The Boston Rubber Works of Chicago have been incorporated with \$100,000 capital stock by F. Eldridge, E. Littlefield, and F. S. Wheaton.

—Mr. Robert D. Evans, president of the United States Rubber Co., has sold his handsome residence, No. 324 Beacon street, Boston, to the Hon. E. S. Converse, of the Boston Rubber Shoe Co. It is supposed that Mr. Evans intends to make his permanent residence in New York city and the house purchased by Mr. Converse is for the use of his eldest daughter, who was married last winter to Mr. Lester Leland.

—John H. Gateley, of Janesville, Wis., has made a standing offer of \$3 per pair for the first dozen pairs of rubber shoes which may be made by the proposed Badger Rubber Manufacturing Co.

—The Colombian line of steamers now carry all the rubber consigned to New York from Panama, and as the shipments are becoming much heavier, it is believed that Pacific-coast merchants are forwarding it to that point to be sent to New York on a local bill of lading and thus obtain a low rate of freight.

—R. L. Cornelius, Chicago representative of the Standard Rubber Corporation (Brockton, Mass.), reports some very fine business for the past few weeks.

—The Ohio Rubber Co., with a capital stock of \$65,000, were incorporated at Cleveland, on May 1, by John McClymonds, Joseph D. Connolly, Peter Connolly, D. H. Tilden, and Roger M. Lee.

—Among recent building permits granted in New York city was one to the Union India Rubber Co., for a one-story brick factory, Nos. 1941-1950 Park avenue, to cost \$1500.

—The National India Rubber Co. (Bristol, R. I.) are reported by a local newspaper as enlarging their works in every department, and having a better outlook for a good season than in many years past.

—Web men say that the advance in the price of silk has come to stay. This is not good news to them, or to the mackintosh dealers. Their reason for this is that "thrown silks" have advanced, and that the people in that branch are the most careful people in changing prices, their reluctance in this respect being remarkable. The advance now affects Italian and Japan organzines, Canton filature and Japan trams. Poor grades have not advanced so much, but these are not so popular, being difficult to manipulate.

—The reclaimed-rubber business bids fair to be much larger this year than last. The reason for this is that manufacturers will make more goods. But it is a mistake to presume that when rubber is high, more reclaimed rubber is used. The compounds are almost absolutely fixed, and to change them would disturb the harmony in the heating and grinding. A margin of one or two per cent. is all that is practicable in the way of change. The mechanical goods men as a body could perhaps get in more reclaimed rubber, but one half of them have gone about as far as they can in that direction, while the other half have raised the banner "Sink or swim, live or die; we will keep up the quality of our goods." The reclaimed-rubber men consequently look only to the increase in production of boots and shoes for their great trade this season.

—George F. Millett, a salesman well known in the boot-and-shoe trade of New England, has accepted a position with Clark, Hutchinson & Co., of Boston, boot-and-shoe jobbers.

—Speaking of the rumor that the United States Rubber Co. will erect a large plant at Niagara Falls, Mr. Joseph Banigan said to THE INDIA RUBBER WORLD that there was probably little in it. The capacity of the present rubber mills properly handled is sufficient for a number of years, at present only about 75 per cent. is employed, and to build another mill would call for a more substantial reason than is at present apparent.

—How many pairs of rubber shoes are made and consumed in a year is a question that cannot be accurately answered. One manufacturer says 40,000,000, a prominent jobber 27,000,000 and one of the largest manufacturers 25,000,000. Probably the last named is more nearly correct than the other two, for one pair of shoes annually to every 2½ persons, men, women and children, is a very good percentage. Small children do not as a rule use them, the negro population are without them, and on Broadway in a rainy day apparently only about one-fifth of the pedestrians are shod with them.

—The mechanical rubber goods business is brisk, but there is much complaint of low prices. Duck has advanced ten per cent., and rubber is high, but hose, belting and packing are barely steady. Some of the manufacturers are reducing the quality of their goods in order to keep ahead. The position of the trade is a safe one, however; stocks are light, and there is no fear of financial trouble.

—The Ashtabula (Ohio) Rubber Works have been adding a 100 horse-power boiler, making three boilers in their plant, and they expect to add another during the summer. The local newspapers report the works very prosperous and state that owing to a large number of orders in hand the firm have been obliged to recall their traveling salesmen.

—W. R. Brixey, the manager of the Day Kerite wire, has a handsome pavilion at the World's Fair, the interior of which is finished in buttonwood. The floor space is 9x9 feet. As the electrical portion of the exhibit is ill-lighted, the display of electrical goods interspersed with incandescent lights will be all the more suggestive as to their practical use.

—B. F. Bennington, treasurer of the Standard Rubber Corporation, spent three days recently in a visit to Rochester, Philadelphia, and Baltimore, during which time he took something more than \$8000 worth of orders. He says that his company have not known what it is to be without orders since they first started in business in April, 1892.

—A new firm for supplying rubber mills with crude rubber, cotton-duck, and general ingredients used in compounding has been started in Trenton, N. J., by Richard Radcliffe Whitehead. The proprietor has been all his life connected with the rubber business as a manufacturer, and his knowledge will be of special service to his customers in the supply business.

—At the meeting of the stockholders of the Pará Rubber Shoe Co., held on May 8, there was considerable of a contest. When the vote was taken it was found that Mr. Houghton and his friends controlled 5600 shares, while the opposition had 3800. The following directors were elected: J. M. Dennison, W. O. Grover, C. S. Houghton, A. H. Hardy, J. M. Sears, Frank Leighton, and Charles H. Allen. The 3000 shares owned by Mr. Houghton and his son were cast for this ticket. T. P. Parsons was chosen treasurer and clerk.

—Richard R. Whitehead, of Murray, Whitehead & Murray, (Trenton, N. J.) has withdrawn from the firm, and hereafter the business will be conducted by Mr. C. Edward Murray, under the old firm name.

—A cement for bicycle-tires is made of two pounds of asphalt and one pound of Gutta-percha. These are melted together and applied hot to the wheel, after which the tire is applied in place. It is said to hold excellently.

* * *

TRADE PUBLICATIONS.

THE firm of Robert Poole & Son Co., Baltimore, Md., have just published a new edition—the twelfth—of their book "Gearing," which is a neat and handy volume of 206 pages. This firm have supplied some large rubber-manufactories with their gearing, which renders this book of interest to other manufacturers in the same line. The arrangement of material in this book, including the dimensions of a vast number of patterns, is such as to enable intending purchasers to select readily just what they want. The list embraces all the sizes that the firm are now prepared to make. Their system of machine molding, however, enables them to produce on short notice other sizes and patterns.

—The Berlin Iron Bridge Co. (East Berlin, Conn.) have sent out a new edition of their catalogue which fills 320 large pages and forms one of the most attractive trade publications of the year. They are manufacturers not only of bridges but of machine-shops, sheds, and other buildings of iron on a large scale. Nearly every page contains a well-executed engraving of an important example of their work. In their list of patrons appears the name of at least one rubber-manufacturing concern and doubtless many other will in the near future find the modern iron construction desirable for their plants.

THE CHEMIST IN GERMAN RUBBER FACTORIES.

By H. C. van Rhyn, Ph. D.

AMONG American India-rubber manufacturers the opinion seems to prevail that the main use of chemistry in their industry is the art of adulteration, or of preparing substitutes for genuine India-rubber. In Europe, and especially in Germany, manufacturers years ago came to the conclusion that the aid of science could be made beneficial in another direction and that the chemist might detect the cause of hitherto unexplained deficiencies and unevenness in the manufactured product. This has since been found to be the case, and to-day in all large India-rubber works throughout Germany the chemist has his place.

His duty begins when the raw article is received. Trees and plants, like men and animals, have their diseases, and just as the secretions of unhealthy animals are abnormal, so also are those of diseased plants. The milk drawn from the India-rubber tree is often in a condition which makes it impossible to transform it into a manufactured article which must conform to a certain standard of excellence. In such cases the bad results of the disease must be obliterated, and here the chemist begins his work.

There are other causes which contribute to the difference in quality of the raw material. The principal one is a result of the crude methods which seem to be employed in drawing off the rubber in all countries where the rubber tree flourishes. A large percentage of the raw material which passed through the writer's hands in German factories was found to be mixed with animal matter,—probably the result of insects getting mixed with the sap. This animal matter, if left in the rubber, will invariably, by chemical action, create acids which must naturally lower the quality of the manufactured article, as all acids are deleterious to its strength. The rubber will show breaks and cracks in a short time and complaints, the reason of which the manufacturer cannot explain, will come in.

As this article is not intended to go deeper into scientific questions we shall make no mention of other products of animal matter which lower the quality of rubber made from impure raw material. We shall only state that experience has shown that inferior qualities of raw India-rubber can be made to yield very good results by treating them chemically before use.

In Germany, which exports considerable quantities of rubber goods to hot climates, it has been found that rubber intended for such export should be treated differently from that intended for moderate or low temperatures. The writer believes that this is the reason for the preference given to German India-rubber in many warm countries.

The cost of treating raw material chemically, wherever it is found necessary, is small, and the superiority of the article obtained in this way will pay for this labor many times over. The raw India-rubber, having been brought to its normal, healthy conditions, the chemist in Germany

is employed to see it through all the phases it assumes during the processes of manufacture. Everything that is added to it is tested for its purity, and it is the duty of the chemist to make sure that no deleterious substance enters into it.

Let me give one instance. Oxid of zinc is universally used in the manufacture of white rubber. The writer understands that in the United States, French, German, and American oxids are used. In all cases where the German, and in much higher degree still, where the American article is used, the manufactured goods will harden and show cracks after a comparatively short use. The reason for this is the presence of sulphur or sulphates in the oxid which by chemical reaction causes little holes filled with gas to form in the rubber and, together with the hardening influence of the sulphates, these holes lessen the resistance of the rubber to an enormous extent. Such goods can stand very little wear and tear. As all the cheaper oxids of zinc are made from the ore, the manufacturer in the United States was compelled to buy the most expensive French oxid, which is made from what is called commercially pure zinc.

Here, again, the chemist gives an advantage to the German manufacturer. He uses the cheaper German oxid, and if obtainable at a lesser price, might use the inferior American oxid without evil results to his goods. He has found that not *all* the impurities in oxid made from ore need be removed, and the chemist has taught him that all those that are harmful—all those containing sulphur—can cheaply and quickly be separated. The writer has no doubt that many complaints about certain kinds of goods, coming to manufacturers, have their cause in the use of impure oxid of zinc.

Improvements also which are not connected with the purifying of materials used in the manufacture, have been made by the chemist in Germany. For many goods, from the common rubber door-mat to fine surgical instruments, it is desirable to have certain parts of the goods of greater hardness than others. In Germany this is accomplished by the use of chemicals, applied *after* the whole process of manufacturing,—molding, etc.,—is gone through with. On a door-mat these parts for instance which come in contact with the foot are hardened sufficiently to give them greater strength and the whole article a much longer period of usefulness.

The *coloring* of India-rubber has only been accomplished in a satisfactory manner since the chemist found that certain kinds of aniline colors may be used for it. In Germany a full line of these colors soluble in benzine are now manufactured and they solve a problem which has previously been dealt with in vain. Brilliant colors are thus obtained which, though not absolutely fast, suffice for most practical purposes. The method will be treated in a later article.

AFFAIRS OF THE UNITED STATES RUBBER COMPANY.

THE annual meeting of the United States Rubber Co. was held at New Brunswick, N. J., on April 18.

The information which has been made public with regard to this meeting is confined mainly to the fact that the old list of directors was continued in office without change. It may be of interest in this connection to repeat their names, as will be done below. A semi-annual dividend of 4 per cent. was voted on the preferred stock of the company—amounting to something over \$13,000,000—and it is claimed that the earnings of the company for the last six months would have justified an equally large dividend upon the common stock, but that for prudential reasons it has been decided to carry the money to the surplus fund. By the way, the local newspapers at various points have begun to announce the receipt by resident stockholders of the dividend checks.

Many of the daily newspapers included the name of Mr. Joseph Banigan among the new directors, but this was rather premature, for the reason that no action was taken by the Woonsocket Rubber Co. looking to a consolidation until April 24. Since the date of the meeting at New Brunswick active negotiations have been in progress between the United States and the Woonsocket companies, and it is now a matter of current gossip that upon their completion Mr. Banigan may become the president of the consolidated company. Should Mr. Evans retire, as rumored, it will be because of his wishing to devote his time to other interests rather than from any dissatisfaction on the part of the stockholders of the United States Rubber Co. As one of our contemporaries states it, Mr. Evans is a very wealthy man, with many interests outside the rubber industry, and he can retire feeling that he has accomplished all that he set out to do and in a manner very acceptable to the stockholders of the United States Rubber Co.

The list of directors of the Rubber Co. includes:

Charles A. Coffin, President General Electric Co., Boston, Mass.
 Samuel P. Colt, President National India Rubber Co., Providence, R. I.
 James Deshler, Secretary New Jersey Rubber Shoe Co., New Brunswick.
 Robert D. Evans, President American Rubber Co., Boston, Mass.
 Charles R. Flint, Messrs. Flint & Co., New York.
 James B. Ford, Treasurer Meyer Rubber Co., New York.
 J. Howard Ford, President Meyer Rubber Co., New York.
 Robert M. Gallaway, President Merchants' National Bank, New York.
 William H. Hill, Messrs. Richardson, Hill & Co., Boston, Mass.
 Henry L. Hotchkiss, President L. Candee & Co., New Haven, Conn.
 H. B. Hollins, Messrs. H. B. Hollins & Co., New York.
 George H. Hood, President Boston Rubber Co., Boston, Mass.
 Charles L. Johnson, Treasurer L. Candee & Co., New Haven, Conn.
 James B. Langdon, President New Brunswick Rubber Co., New Brunswick, N. J.
 George A. Lewis, President Goodyear's Metallic Rubber Shoe Co., Naugatuck, Conn.

Edwin A. Lewis, Director Goodyear's Metallic Rubber Shoe Co., Naugatuck, Conn.

M. C. Martin, President and Treasurer New Jersey Rubber Shoe Co., New York.

Frederick M. Shepard, President Goodyear Rubber Co. and Rubber Clothing Co., New York.

Richard G. Sibley, Equitable Building, New York.

J. Edward Simmons, President Fourth National Bank of New York.

William L. Trenholm, President American Surety Co., New York.

John P. Townsend, President Knickerbocker Trust Co., New York.

Charles E. Thayer, Boston.

John I. Waterbury, Vice-President Manhattan Trust Co., of New York.

Samuel N. Williams, Treasurer Lycoming Rubber Co., Williamsport, N. Y.

Reports have been published recently that the United States Rubber Co. would have its chief factory and offices at Niagara Falls, occupying about fifty acres of tunnel land and using 5000 horse-power to be obtained from the Niagara Falls Power Co. Charles R. Flint, of the rubber company, is one of the stockholders of the Niagara Falls Power Co., and has other interests in that locality. He stated, however, to THE INDIA RUBBER WORLD, that the report with regard to establishing rubber factories at the Falls was news to him.

The following item is from the Boston *Herald* of May 2: "The new issue of United States Rubber Co. stock was 5101 shares common and 4576 shares preferred, given in exchange for 81 shares New Brunswick Rubber Co., 171 shares National India Rubber Co., and for a majority of the stock of the Goodyear's India Rubber Glove Manufacturing Co. A further issue for the Woonsocket company's stock may be expected."

* * *

THE annual meeting of the stockholders of the Woonsocket Rubber Co. was held on Monday afternoon, April 24, in the Woonsocket office at the "Alice" mill. About forty were present, including several ladies. The old board of directors was reelected and the board reelected Joseph Banigan president. The question of becoming connected with the United States Rubber Co. was discussed at length, President Banigan explaining the terms and advantages of such a union. Attorney Tillinghast, counsel for the Woonsocket Rubber Co., said that they could not, as a corporation, enter into the proposed arrangement, but that each stockholder could sell his shares and buy shares in the new company, thus bringing about the consolidation. It was stated that each stockholder of the Woonsocket company could receive three shares of United States Co. stock for one of the old. The question of uniting with the United States Co. was thus left an open one, with the understanding that each stockholder would be communicated with and his opinion ascertained. It is understood, however, that the largest holders of shares, including President Banigan, who owns a controlling interest, were favorable to accepting the offer made by the United States Rubber Co.

Some of the stockholders being opposed to the transfer, it is mentioned in several of the local newspapers that President Banigan has expressed a willingness to buy the shares held by them. According to the *Woonsocket Reporter* one resident shareholder on the day following the meeting sold to Mr. Banigan 231 shares for cash. The same paper mentions \$300 as the price offered for Woonsocket stock. That paper reports that one young man several years ago purchased ten shares for \$600. Stock dividends have since increased his holding to 50 shares, for which he is now offered \$15,000. During all this time, in addition, he has received regular dividends of not less than 6 per cent. per annum, and much of the time 10 per cent. It is stated that the company has erected its buildings and made improvements for a number of years out of a surplus saved after paying dividends. The company has been so strong financially as not to have found it necessary for several years past to borrow money for any purpose.

The *Reporter* says that one of the reasons why Mr. Banigan desired a consolidation with the United States Rubber Co. is that the felting works at Milville will be used for the manufacture of all felting needed by all the concerns in the United States Rubber Co. This would necessitate the enlargement of the works to treble their present size and capacity.

LONGDEN'S NON-LEAKING VALVE CHAMBER.

THE neck of a rubber bulb has always been acknowledged to be a weak and troublesome part. As the bulb has a tendency to crack there before anywhere else, and in addition to this when the neck of the bulb is sprung over the metal fitting, it becomes after a time stretched out of shape and loose so that a slight pressure of water through it causes a leak. To



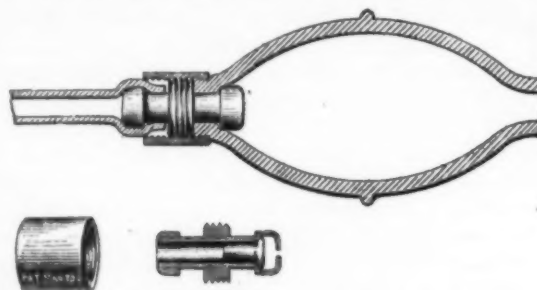
BULB SYRINGE WITH NON-LEAKING VALVE CHAMBER.

obviate this, the arrangement shown in the accompanying illustration was invented.

This is nothing more or less than a metal or hard rubber sleeve that screws over the neck of the bulb, the fitting holding it tight and in fact making the neck of the bulb a rubber packing which effectually prevents any leak or break as it thus strengthens the weakest part of the syringe and makes it impossible for it to become loose.

If through severe usage the rubber should stretch a little, a slight turn of the band at the neck of the bulb will make it all

right again. This is put when wished on any of the syringes manufactured by the owners of the Longden patent and has already proved itself to be one of the most practical and popu-

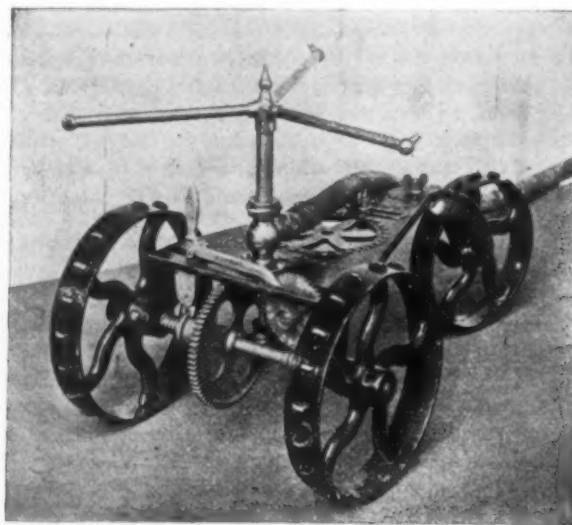


SECTIONAL VIEW OF NON-LEAKING VALVE CHAMBER.

lar features of syringes that the trade have recently known. Manufactured by the Seamless Rubber Co., New Haven, Conn.

A TRAVELING LAWN-SPRINKLER.

THE "Little Giant" Traveling Lawn-Sprinkler is the first one ever invented with the capacity of moving itself over the lawn, and is fully protected by letters patent. Under an ordinary pressure of water it will roll itself slowly and steadily in any direction, either in a straight line or in a circle of any diameter desired. It can be set to travel anywhere from 15 to 500 feet per hour, as preferred. It can be changed from the lowest to highest speed in a moment. It can be gaged to throw the water over a swath anywhere from 5 to 50 feet in width. It can



A TRAVELING LAWN-SPRINKLER.

be used as a stationary sprinkler by throwing it out of gear. It has a figured dial by which it can be adjusted to travel any number of feet, and will stop automatically after covering the desired distance. With a pressure of water as low as 20 pounds it will drag 75 feet of hose, while with a pressure of 60 or 70 pounds it will carry 200 pounds extra weight and drag as many feet of hose. Price \$15.00. Manufactured by Portland Lawn Sprinkler Co., No. 98 Exchange street, Portland, Me., No. 32 Oliver street, Boston.

POINTS IN THE MAKING OF MECHANICAL GOODS.

AN excellent grade of rubber belting is made on a thirty-ounce duck, "frictioned" with a fine quality of rubber compound, the gum from the friction uniting between the plies and when vulcanized binding the parts into a whole that is rubber from cover to cover. The qualifications of a good belt are, that it should have the proper amount of rubber of a good quality between the plies of the duck and between the threads themselves as well. The strength between the plies can readily be tested by cutting the belt open and endeavoring to pull them apart. If the quality is good, it will be very difficult to do this, and the rubber will stretch and show the fiber.

Great care is taken in the manufacture of the duck for first-class goods. The warp and filling of the duck must be so arranged that the belt will have the minimum amount of stretch in it. An inferior belt is often made of open weave, slazy duck, which gives a good thickness, but it lacks firmness, and will stretch to such an extent that the cover will crack and the plies become separated. In low grades a great deal of old rubber or shoddy is used, with substitute in the place of new rubber.

In the manufacture of rubber hose the duck should be closely woven in order to give the hose proper strength, the rubber being frictioned into the interstices of the same, and the plies wrapped together so that it will not blister. The tube, or the inside lining of the hose, should be made of firm but elastic material that will stretch when tested, and return to about its original size. Old rubber is frequently used in the tube, and when this is the case it can readily be detected by the fiber being very short; that is, it will not have elasticity, but will break easily when stretched. When substitute is used and the goods are new, the tube will stretch very well, but it will not come back to its original size.

In steam-hose the amount of rubber between the plies of duck should be considerable, otherwise it will dry out and the hose open very quickly between the plies. The tube should be made of specially-prepared stock, chemicals being used, which will aid it in resisting the great heat evolved by steam. In cotton fire-hose the fabric should always be smoothly woven and free from knots and uneven places. The tube should be of heavy, fine rubber and free from adulteration, and also well vulcanized to the fabric. Too much stress cannot be placed on the quality of the tube, which must be of the best, or the hose will not last.

Plain packing is made with cloth insertion, or with cloth one side, or with cloth both sides; or the insertion can be used in addition to the cloth on the outside. Each layer of cloth, whether as insertion, or on the outside, is denominated "one ply." There is great scope for adulteration in packing, shoddy being used and a variety of compounds. A good way to detect this adulteration is in the weight, as bulk for bulk rubber will be lighter. Another test is to bend the packing on itself, if poor it will not spring back

to its original shape, and as it becomes old it will harden, be brittle, and crack when bent.

The business in rubber tubing was of very small proportions until the invention of the machines which have cheapened the product so much. This was eight years ago. Then the material was cut into strips twelve feet long, and of a proper width wrapped around a rod, and vulcanized. Naturally the pole was inconvenient to handle, and it was with great difficulty that fifty feet lengths were made on rods fifty feet long. The tubing machine came along and a revolution—evolution is the word—ensued. In this the worm caught up the dough, and it was pressed through a die into lengths illimitable. These are coiled up, sprinkled with soapstone to keep the convolutions from adhering and run into the vulcanizer. This simple process naturally cheapened tubing and in that way a great field has been opened the one article of syringes taking tons every day.

RUBBER-MEN AND FREIGHTS.

THERE was a meeting in Boston early in the month between the representatives of the rubber companies and a committee of Boston jobbers to discuss the rules laid down regarding the payment of freights and discounts. According to "*Boots and Shoes Weekly*," the rubber companies were represented by W. S. Ballou, Robert D. Evans, Joseph Banigan, Charles L. Johnson, the Hon. E. S. Converse, and Harry Converse. The committee of jobbers consisted of E. B. Holmes, of Parker, Holmes & Co. (chairman); Mr. Converse, of Converse & Pike; Mr. Hutchinson, of the Clark-Hutchinson Co.; Henry Tapley, of Amos P. Tapley & Co., and Mr. Howard, of Batchelder & Lincoln. Matters were quite freely discussed and both sides expressed their opinion in a free, off-hand manner, but void of any friction or hard feeling. The rubber companies have taken the matter under consideration and will give a decision later.

TWO RUBBER CEMENT RECIPES.

ELASTIC.—Bi-sulphid of carbon, 4 ounces; India-rubber in fine shreds, 1 ounce; isinglass, 2 drachms; Gutta-percha, $\frac{1}{2}$ ounce; dissolve. Used for joining leather or India-rubber. The parts must be thinly coated with the solution, which is left for a few minutes to dry, and then heated to melting; the parts are placed in close contact, and the air bubbles are well hammered out.

LEATHER.—Gutta-percha dissolved in bi-sulphid of carbon, to form a mass of treacly consistence, or Gutta-percha, 1 pound; India-rubber, 4 ounces; pitch, 2 ounces; shellac, 1 ounce; linseed-oil, 2 ounces; melted together it will answer the same purpose as the elastic cement described above.

DEALERS in rubber goods furnishing mill and factory supplies cannot be too careful in enjoining upon customers the necessity of keeping rubber goods not in use in a cool place, neatly rolled or packed, and away from grease or oil. Oils soften rubber and render it unfit for use, and many a complaint as to quality can be ascribed to ignorance or carelessness of this sort,

RUBBER AT THE WORLD'S FAIR.

THE Boston Belting Co. are sending out to their friends handsome cards announcing that their exhibit at the World's Columbian Exhibition will be found in Machinery Hall, section 15, column J, No. 27.

The Boston Rubber Shoe Co. will occupy about 500 square feet of space in the Boot and Shoe building, showing all the principal styles of goods that they make. The goods exhibited have been made up especially for this exhibit.

The Woonsocket Rubber Co. have secured 1200 square feet of space at the World's Fair, and will make one of the most extensive exhibits in the rubber industry. There will be splendid models of the "Alice" mill and all other buildings in connection therewith, and also of the rubber mill and connected buildings in Millville. The scale is one-fourth of an inch to a foot, so that the models are of fairly large size. There are sixteen buildings in all. The total cost of these models is stated at \$8000. It is said that Ward & Son, of Nottingham, England, will forward to the Woonsocket company a pair of rubber overshoes over 100 years old, to be exhibited at the Fair.

A NEW WATERPROOF GARMENT.

THERE are people in this world who object seriously to the odor of rubber and whose sense of smell is so acute that no matter how pure the gum or how carefully disinfected, they are troubled by the odor. It will be a gratification to these people to learn that a rubber-manufacturer has produced a garment that is absolutely waterproof and yet cannot smell of rubber, as it contains none of it at all. The garment is made up in any of the popular shapes. It is known as the "Belvidere," and may be made of any of the cloths that appear in the best sample-books. The waterproofing is done by treating the cloth with a chemical which draws the fibers together and makes them as impervious to water as a duck's back. Indeed a bag made of this cloth will hold water for any length of time. A lady wearing a garment of this kind and being out in the rain finds herself perfectly protected, and coming in out of a shower can give the garment a shake and get rid of every drop of moisture that has clung to the outside. These garments are made to order by the United States Rubber Works, No. 2 West Fourteenth street, New York.

REVIEW OF THE RUBBER MARKETS.

THE story of the crude-rubber market for the past month is readily told. It has been and is very dull. For this the general financial situation is probably responsible, manufacturers and all others endeavoring to forecast the future, and, being unable to do so, they follow the maxim of the business-man,—figure up day after day their bank accounts and let the rubber stocks take care of themselves. The deliveries of Pará during April in New York were 1400 tons; one year ago in April they were 1015 tons. The receipts of Pará were 1070 tons; one year ago they were 1178 tons. Stocks in New York at the end of April this year and last, stated in tons, were:

	Fine and Medium.	Coarse.	Caucho.
April 30, 1892.	625	184	151
April 30, 1893.	1020	200	70
Difference.	+395	+16	-81

The world's visible supply of Pará rubber on April 30, 1893, compared with a date one month before, and one year before, was as follows, amounts being stated in tons:

	April 30, 1892.	April 30, 1893.	March 31, 1893.
United States.	721	1290	1109
Liverpool.	1235	635	555
Pará.	680	1025	1730
Afloat.	247	700	1520
Total.	2883	3650	4914

The situation in Pará is reported to have been strong. There were on May 1, 975 tons of Pará grades, and 50 tons Caucho, of which in first hands there were 470 tons Pará grades and 20 tons Caucho.

The situation abroad is reported to be one of strength. The Paris correspondent of a well-known importing-house in New York writes reflecting the European position of the trade: "The demand for rubber for bicycle-tires seems to be double that of last year. Our manufacturers are not well supplied with Pará grades, and after the end of April they will be heavy buyers during the next few months." Later the same correspondent wrote: "It is said that the market looks dull, but consumption is greater than last year. Within the past two months we have delivered to our customers twice as much of Pará grades as we did in the corresponding time last year, and

our stocks must be reduced. . . . The demand is very large, especially for bicycle tires."

The statistical position of Pará rubber in New York is thus reported for April, 1893, as compared with the same month in preceding years:

Stock of Pará here,	March 31,	about	2,225,000 pounds.
Receipts	April	"	3,510,000 pounds.
Deliveries	April	"	3,485,000 pounds.
Stock	April 30, 1893,	"	2,250,000 pounds.
Stock	April 30, 1892,	"	1,600,000 pounds.
Stock	April 30, 1891,	"	3,100,000 pounds.

PRICES FOR APRIL.

	1893.		1892.		1891.	
	Fine.	Coarse.	Fine.	Coarse.	Fine.	Coarse.
First.	76	51	71	50	90	60
Highest.	76	51	71	50	90	60
Lowest.	75	49	68	46	87	57½
Last.	75	49	68	46	89	59

The latest quotations in the New York market are:

Pará, fine, new.	75@77	Sierra Leone.	26@45
Pará, fine, old.	78@80	Benguela.	51@52
Pará, coarse, new.	50@56	Congo Ball.	36@42
Pará, coarse, old.	—	Small Ball.	33@36
Caucho (Peruvian) strip. .	52@53	Flake, Lump and Ord. .	31@32
Caucho (Peruvian) ball. .	58@60	Mozambique, red ball. .	—
Mangabeira, sheet.	36@42	Mozambique, white ball. .	—
Esmeralda, sausage.	51@52	Madagascar, pinky.	58@62
Guayaquil, strip.	38@40	Madagascar, black.	42@45
Nicaragua, scrap.	51@53	Borneo.	28@45
Nicaragua, sheet.	49@50	Gutta-percha, fine grade. .	1.75
Guatemala, sheet.	36@41	Gutta-percha, medium. .	1.15
Thimbles.	40@41	Gutta-percha, hard white. .	1.10
Tongues.	34@37	Gutta-percha, lower sorts. nominal.	—

In regard to the financial situation Messrs. Simpson & Beers, brokers in crude India-rubber and commercial paper, New York, advise us as follows:

"We found during April no demand for paper from our city banks, largely owing to the constant demand from their dealers, who of course are entitled to first consideration. Distrust prevails in financial circles, and your banks decline the best paper even at very full rates, 7 per cent. being no inducement. The outlook, we regret to state, is not promising, owing largely to gold and silver agitation. A limited business in 4 to 6 months' paper was done during the month at 7 per cent. by the out-of-town banks."

THE TRADING IN RUBBER STOCKS.

THE quotations which follow represent the transactions in Rubber stocks on the New York Stock Exchange since the last report given in these pages:

DATES.	COMMON.			PREFERRED.		
	Shares.	High.	Low.	Shares.	High.	Low.
April 1.	500	53½	51½	10	98	98
April 3.	850	55½	53½	210	97½	97
April 4.	2751	59	55½	101	97½	97½
April 5.	1075	58½	57½	600	97	97
April 6.	1402	58	56½	....	....	....
April 7.	545	56½	55½	125	98½	98½
April 8. ....	....	....	....	125	99	98
April 10.	460	56½	55½	200	98	98
April 11.	200	56	56	100	98½	98½
April 12.	525	55½	55½	100	99	99
April 13.	510	56½	55½	56	99½	99½
April 14.	1377	58½	55½	267	98½	98½
April 15.	100	58	58	....	....	....
April 17.	900	57¾	56½	130	99	99
April 18.	3771	60½	57¾	350	99	98½
April 19.	1270	59	55½	250	98½	98½
April 20.	200	57	56	170	98	98
April 21.	860	57	55½	257	90	90
April 22. ....	....	....	....	....	....	....
April 24.	3175	59½	57	100	94	94
April 25.	1980	60	58¾	100	94½	93¾
April 26.	1425	59½	58	....	....	....
April 28.	600	60	58½	....	....	....
April 29.	1150	58¾	58	105	93¾	93¾
May 1.	1000	57¾	56	....	....	....
May 2.	850	56	55½	100	90¾	90¾
May 3.	6388	56	48	430	91	90
May 4.	1706	46½	45	280	88	83
May 5.	3785	46½	39	180	80	80
May 6.	1410	45½	45	605	87	85½
May 8.	1110	45½	45	11	86	86
May 9.	1110	45½	40½	260	86¼	86
May 10.	2250	40½	35	1347	79	69
November ...	31,208	44¾	38¾	....	....	....
December....	15,943	48¾	39	2,607	99	94½
January.....	9,604	47¾	42½	5,521	99	94
February....	7,024	46½	43	1,333	97	92½
March.....	30,438	58½	42	2,938	99	93
April.....	25,625	60½	53¾	3,251	99½	94¾

THE RUBBER-GOODS TRADE.

THE situation is a peculiar one. Wall street has been very busy with a panic and the question arises as to its continuation in the commercial community. The disposition on the part of many is to do as little as possible until the course of affairs becomes more readily foretold.

In the boot- and shoe-business, a leading Reade-street jobber said to THE INDIA RUBBER WORLD: "Business has been very dull since April 1; our impulse is to call it dead. No one is buying and all are holding off until fall. The situation, however, is so strong that the trade will be the losers by this course of action. Stocks in manufacturers' hands are anywhere from six to ten million pairs short, and the jobbers and retailers have practically nothing. Before many weeks there will be a rush to get stock and then a good many will be left. That applies to shoes. In boots the situation is not so strong. The higher price of rubber boots will build up the leather-boot trade. Very few persons will give 50 cents or \$1 more for a rubber boot than for a grain-leather one, and that is the situation now."

A good many contracts have been made, but there is no disposition to "detail." Among the retailers in different sections of the country the demand is very light. Tennis-goods are passing out of first hands in good shape but there has been little or no demand from the retailer, the weather being wet, and the season backward.

In mechanical goods there is a good trade from the railroads for all their specialties, and mill-men are doing well. Garden-hose is flat, nature so far doing the sprinkling and doing it well. The tire-men have about finished their season, but manufacturers are busy catching up.

In druggist's sundries the business is very fair, as well as in the hard-rubber lines.

AFRICAN RUBBER—LIVERPOOL.

THE market for all descriptions of African rubber has been tolerably steady during the entire month of April, and fluctuations have not exceeded about ½ penny per pound, with the exception of soft Liberian, small sales of which have been made at 1 penny per pound decline. We estimate the sales for the month at about 170 tons, including:

Soft Liberian, 1/3½@1/2½; Hard Liberian, 1/5@1/4¼; Accra, Saltpond, and Cape Coast Biscuits of fair quality at 1/10½@1/9¾; Accra Biscuits, best quality, 1/11@1/11¼; Adda Niggers, 1/9½; prime Sierra Leone Niggers, 18/@1/8½; Grand Bassam and Assinee, 1/5½@1/6; prime Gambia Niggers, 2/1@2/2¼; mixed Cameroon, 1/7; large Cameroon or Bantanga Ball, 1/6; Congo Ball, 1/9½; Gaboon Ball, 1/7½; Thimble, 1/8½@1/8; Flake, 1/2½; Lump Flake, 1/3; Benzuela Niggers, 1/11½, c. i. f. Liverpool; prime black Manah Twists, 2/3@2/3¾.

At the close, the tone of the market is, if anything, rather quieter, in sympathy with Pará grades. The stock is officially estimated at 624 tons, against 629 tons last month.

The best description of African kinds are not in large supply, and for these, we think, prices will probably be maintained.

In London, medium kinds have commanded full prices, and no decline of importance has taken place, with the exception of Madagascar Niggers, a sale of which has been made at 1/4 per pound, this being 1 penny per pound lower than the last price accepted.

WM. SYMINGTON & CO.

Liverpool, April 29, 1893.

LIVERPOOL RUBBER STATISTICS.

	TONS.
Stock of Pará rubber March 31, 1893.....	555
Arrivals of Pará rubber during April.....	504
Stock of Pará rubber April 29, 1893.....	1059
Deliveries of Pará rubber during April.....	625
As against deliveries during March.....	398
Stock of African rubber March 31, 1893.....	629
Arrivals of African rubber during April.....	298
Stock of African rubber April 29, 1893.....	927
Deliveries of African rubber during April.....	624
As against deliveries during March.....	303
As against deliveries during March.....	320

IMPORTS FROM PARA.

THE imports in detail of rubber direct from Pará at the port of New York, since our last report, have been as follows, all quantities being expressed in pounds:

April 11.—By the steamer *Paraense* from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Totals.
New York Commercial Co.	237,800	81,000	61,600	....	380,400
Lawrence Johnson & Co.	67,500	26,400	32,600	....	126,500
Reimers & Meyer.....	41,000	33,900	43,400	5,700	124,000
Boston Rubber Shoe Co.	21,400	7,100	68,400	8,500	105,400
C. Ahrenfeldt & Son.....	6,500	....	700	24,900	32,100
Shipton Green.....	10,200	1,100	8,600	7,800	27,700
Joseph Banigan.....	....	....	21,600	....	21,600
W. R. Grace & Co.....	....	....	20,500	....	20,500
Sears & Co.....	....	....	....	2,500	2,500

Total..... 384,400 149,500 257,400 49,400 840,700

[IMPORTS FROM PARA—CONTINUED.]

April 25.—By the steamer *Cyril* from Manáos:

	Fine.	Medium.	Coarse.	Caucho.	Totals.
New York Commercial Co.	58,600	4,900	34,900	1,800	100,200
Reimers & Meyer	78,500	15,800	32,500	2,800	129,600
Boston Rubber Shoe Co.	31,200	5,700	14,500	3,100	54,500
Joseph Banigan	31,200	5,700	14,500	...	51,400
G. Amsinck & Co.	21,100	3,900	8,900	4,600	38,500
Lawrence Johnson & Co.	18,200	3,400	11,500	...	33,100
Hagemeyer & Brunn.	17,100	1,400	6,000	...	24,500
Herbst Brothers	2,500	...	1,400	2,000	5,900
R. Mandell & Co.	400	200	300	700	1,600
Total	258,800	41,000	124,500	15,000	439,300

April 26.—By the steamer *Gregory* from Pará:

New York Commercial Co.	330,500	59,000	77,400	...	466,900
Boston Rubber Shoe Co.	62,600	27,400	50,600	53,400	200,000
Reimers & Meyer	54,600	15,400	43,500	51,500	165,000
Joseph Banigan	31,800	11,800	26,200	9,600	79,400
Otto G. Mayer & Co.	30,800	...	3,500	...	34,300
Lawrence Johnson & Co.	3,600	...	22,400	...	26,000

	Fine.	Medium.	Coarse.	Caucho.	Totals.
Shipton Green	13,800	700	11,200	...	25,700
Total	527,700	114,300	240,800	114,500	997,300

May 9.—By the steamer *Lisbonense* from Pará:

Boston Rubber Shoe Co.	139,400	38,800	66,000	1,200	245,400
New York Commercial Co.	110,300	21,100	36,000	...	167,400
Charles Ahrenfeldt & Son.	600	...	...	110,200	110,800
Shipton Green	27,400	5,000	13,600	62,300	108,300
Reimers & Meyer	30,300	4,300	51,100	...	85,700
Joseph Banigan	29,400	4,400	6,900	...	40,700
Lawrence Johnson & Co.	12,400	12,600	11,500	...	36,500
Sears & Co.	6,000	4,300	1,800	...	12,100
Otto G. Mayer & Co.	5,100	600	700	...	6,400
Total	360,900	91,100	187,600	182,700	822,300

April imports of Pará rubber	3,881,400
March Imports	2,107,600
February Imports	2,924,300
January Imports	3,349,000
December Imports	4,809,600

IMPORTS OF CENTRALS.

BELOW will be found in detail the imports at New York, during April, 1893, of India-rubber from Mexico, Central America, and South America, other than Pará grades:

APRIL 1.—By the *Alto*=Cartagena:

	POUNDS.
Shultz & Rueckley	1,200
Pedro Velez (London)	7,600
Pambo Brothers (London)	1,600
Pim, Forwood & Co.	8,600
Total	19,000

APRIL 2.—By the *Newport*=Colon:

Eggers & Heinlein	200
[Ex City of New York=Central American ports.]	
F. Probst & Co.	124
J. W. Upperman	3,306
[Ex Costa Rica=Central American ports.]	
Munoz & Esprella	3,012
Hoadley & Co.	3,036
S. Samper & Co.	1,206
Pomares & Cushman	963
W. R. Grace & Co.	3,249
J. Aparicio & Co.	215
[Ex Quilo=Southern Pacific ports.]	
Hoadley & Co.	1,079
G. Amsinck & Co.	4,041
To Order	1,482
C. Roldan & Van Sickle	3,080
Total	26,682

APRIL 4.—By the *Henry Dumola*=Greytown:

Eggers & Heinlein	400
A. S. Lascelles & Co.	200
Jacob Balz	1,100
Marcel & Co.	800
G. Amsinck & Co.	400
Munoz & Esprella	1,000
A. P. Strout	9,000
Andreas & Co.	2,700
Total	15,800

APRIL 5.—By the *Orizaba*=Vera Cruz:

J. W. Wilson & Co.	200
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APRIL 9.—By the *San Marcos*=Colon:
[From Pacific Central America.]

Overman Wheel Co.	225
Herzel, Feltman & Co.	4,400
J. M. Ceballos & Co. (Guazquil)	7,000
Hoadley & Co. (Panama)	1,000
Bock & Co. (Panama)	8,800
Piza, Nephews & Co. (Panama)	6,000
Total	27,425

APRIL 12.—By the *Fumuri*=Mexican ports:

Graham, Hineckley & Co. (Vera Cruz)	300
Theo. Hermann (Frontera)	300
J. Agostini (Frontera)	300
Total	900

APRIL 12.—By the *Colombia*=Colon:

Maitland Phelps & Co. (Panama)	330
[Ex Casma=South Pacific ports.]	
W. R. Grace & Co.	1,843
A. M. Capeno & Co.	1,400

[Ex Quilo=South Pacific ports.]

G. Amsinck & Co.	500
Andreas & Co.	3,300
W. R. Grace & Co.	1,600
C. Roldan & Van Sickle	500
Flint & Co.	830
[Ex Puno=South Pacific ports.]	
W. R. Grace & Co.	308
[Ex City of Panama=Central American ports.]	
Jacob Balz	580
J. Aparicio & Co.	2,753
[Ex City of Panama=Mexican Pacific ports.]	
W. Loiza & Co.	4,091
H. Marquardt & Co.	1,350
Total	19,382

[Ex Puno=South Pacific ports.]

[Ex City of Panama=Central American ports.]

[Ex City of Panama=Mexican Pacific ports.]

W. Loiza & Co.	4,091
H. Marquardt & Co.	1,350
Total	19,382

APRIL 14.—By the *Ailao*=Colombian ports:

W. R. Grace & Co.	9,600
H. S. Forwood	8,400
G. Amsinck & Co.	200
Total	18,200

APRIL 14.—By the *Scottish Prince*=Cartagena:

J. Medius	1,200
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APRIL 18.—By the *Belgian Prince*=Cartagena:

To Order	350
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APRIL 19.—By the *Yucatan*=Vera Cruz:

H. Marquardt & Co.	150
C. Vindeo	1,080
Graham, Hineckley & Co.	150
Total	1,350

APRIL 16.—By the *Helvelius*=Bahia:

Reimers & Meyer	4,500
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APRIL 21.—By the *City of Pará*=Colon:

H. W. Peabody & Co.	158
[Ex Barracosta=Central America.]	
Munoz & Esprella	199
Herzel, Feltman & Co.	1,550
J. Aparicio & Co.	4,235
Hoadley & Co.	2,796
Marcel & Co.	1,065
Total	10,043

APRIL 21.—By the *Alamo*=Colon:

G. Amsinck & Co. (Panama)	7,230
Bock & Co. (Panama)	6,125
Hoadley & Co.	930
Total	14,285

APRIL 22.—By the *Jason*=Central America:

Eggers & Heinlein (Livingston)	325
Eggers & Heinlein (Belize)	250
O. G. Mayer & Co. (Puerto Cortez)	450
Jacob Balz (Truxillo)	300
Joseph Agostino (Truxillo)	375
A. P. Strout (Greytown)	21,500
Munoz & Esprella (Greytown)	8,000
Hoadley & Co. (Greytown)	2,000
Andreas & Co. (Greytown)	1,600
Jacob Balz (Greytown)	1,300
Total	35,950

APRIL 27.—By the *City of Washington*=Tuxpan:

J. W. Wilson & Co.	1,200
H. A. Forrest & Co.	200
Louis Monjo, Jr., & Co.	600
Total	2,000

APRIL 28.—By the *Newport*=Colon:

Eggers & Heinlein	1,668
[Ex City of Sidney=Central America.]	
George C. Alden	450
W. Loiza & Co.	1,128
Total	3,246

Total Imports of Centrals	200,383
Total for March	277,459
Total for February	244,826
Total for January	222,308
Total for December	208,196
Total for November	297,100
Total for October	207,715
Total for September	140,756

BOSTON ARRIVALS.

APRIL 3.—By the *Prodano*=London:

Reimers & Meyer, Africans	2,000
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APRIL 3.—By the *Parana*=Liverpool:

Reimers & Meyer, Africans	6,500
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APRIL 5.—By the *Philadelphia*=Liverpool:

Woonsocket Rubber Co., Africans	60,000
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APRIL 8.—By the *Bostonian*=Liverpool:

Woonsocket Rubber Co., Africans	30,000
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APRIL 12.—By the *British Crown*=Hamburg:

Reimers & Meyer, Africans	7,000
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APRIL 17.—By the *Stockholm City*=London:

Reimers & Meyer, Africans	4,000
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APRIL 20.—By the *Kansas*=Liverpool:

Reimers & Meyer, Africans	12,000
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APRIL 24.—By the *Catalonia*=Liverpool:

Reimers & Meyer, Africans	27,000
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APRIL 26.—By the *Georgian*=Liverpool:

Woonsocket Rubber Co., Africans	32,000
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APRIL 30.—By the *Bohnia*=Liverpool:

Reimers & Meyer, Africans	5,000
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Total Imports for April

	188,500
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Total for March

	221,400
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Total for February

	825,513
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Total for January

	309,640
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Total for December

	236,120
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Total for November

	297,100
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Total for October

	100,650
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NEW ORLEANS.

FEBRUARY.

	POUNDS.	VALUE.
From Nicaragua	40,332	\$19,948
From Colombia	1,633	693
Total	41,965	\$20,641

MARCH.

From Honduras	150	\$ 46
From Nicaragua	7,156	30,314
Total	7,306	\$30,360

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